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VOL. II. BROOKLYN, N. Y., JULY, 1888. NO. 1.

ORIGINAL ARTICLES.

PULMONARY INFARCTION.

BY EMMETT D. PAGE., M.D.

Clinical Assistant to the Chair of Diseases of Children, Long Island College Hospital; Member of the Medical Society of the County of Kings, etc.

Read before the Brooklyn Pathological Society, April 26, 1888.

I have briefly made the following report of these cases of pulmonary infarction, thinking they might be of some interest inasmuch as I was enabled to verify diagnosis in each case by a post-mortem examination.

The first case was that of a German boy æt. 16 years. He had been in this country but two months, was a shoemaker by trade. One year previous in Germany he had had an attack of Bright's disease, and had been complaining for several weeks when he came under my care. He had had rheumatism of the arms and legs also about the same time. The family history showed that his mother died of phthisis.

Upon further examination I found his legs were œdematous nearly to the knee. A cough troubled him, and he was subject to headaches. I also found an accelerated heart beat with a murmur at the apex, denoting mitral insufficiency. There was also a slight rise of temperature. Percussion tone appeared normal both anterior and posterior.

Auscultation, slightly prolonged and harsh respiratory murmur at the middle posterior portion of left lung.

At 12.30 o'clock midday of the second day the patient was attacked with hæmoptysis. This was the first appearance of this trouble. The blood was light in color, coming up in mouthfuls attended by coughing, not violent. The pulse at this time was 114, temperature 99½° F., respiration 28. Ordered ʒ i of fluid extract of ergot every two hours till hæmorrhage should cease. At evening the pulse was 120, T. 100° F., R. 26. There was but slight hæmorrhage at this time.

Third Day.—Patient felt very weak and had no desire for food. Found P. 120, T. 99° F., R. 30. Had passed 14 oz. of urine during the preceding 24 hours.

Ord.—Ext. Ergotin fl. - - ℥ i.
Tr. Digitalis, - - - ℥ ss.
Hyosc. extr., - - - ℥ iii.
M. Sig.—ʒ ii every three hours.

Eve.: P. 126, T. 99½° F., R. 32. There was still some spitting of blood, but quantity was very much diminished.

Fourth Day.—Patient slept very little during the night. P. 24, T. 99° F., R. 36.

Physical Examination.—Percussion, dullness anterior middle of right lung and diminished respiratory murmur. Patient speaks only in a whisper.

Eve.: P. 140, T. 100° F., R. 36. Treatment continued. Hæmoptypis continues. Gave stimulants.

Fifth Day.—Morning, P. 150, weak; T. 100° F., R. 36.

Passed 18 oz. urine last 24 hours, color amber; reaction acid, sp. gr. 1016, a trace of albumen present.

Eve.: P. 140, T. 99° F., R. 38. No improvement; treatment continued.

Sixth Day.—Free hæmoptysis during the night. P. 36, T. 99° F., R. 42. Patient complains of much thirst.

Physical Examination.—Find coarse, moist rales middle anterior of both lungs, most marked on left, on both inspiration and expiration; dullness also is more marked. Treatment continued with the addition of quinine.

Eve.: P. 140, T. 100° F., R. 41; no improvement.

Seventh Day.—Morning: P. 132, T. 100° F., R. 42. Œdema of feet and legs increasing. Hæmoptysis considerable during the night—several ounces.

Eve.: P. 126, T. 99° F., R. 36. Urine amber, acid, sp. gr. 1018, marked trace of albumen, uratic.

Eighth Day.—Morning: P. 108, T. 99½° F., R. 34; less blood, but very weak.

Eve.: P. 114, T. 99° F., R. 30. Treatment continued.

Ninth Day.—A. M.: P. 120, T. 99½° F., R. 34.

Eve.: P. 130, T. 99½° F., R. 38. Patient died at 7.30 P. M. Had taken considerable milk and beef-tea during the sickness.

Post-mortem.—Heart weighed 20½ oz.; pericardium adherent everywhere; valves were normal. Heart displaced downward and to left; right auriculo-ventricular orifice enlarged.

Lungs: right, weight 2 lbs. 6½ oz.; pleura slightly adherent anteriorly; upper lobe, lower portion, congested; middle lobe, central portion apoplectic, surrounding portions congested; lower lobe, small portion of upper part apoplectic, surrounding portion congested.

Left lung: weight 1 lb. 11 oz.; upper lobe, pyramidal-shaped, apoplectic portion, base outward, 2½–3 inches in diameter; color dark, approaching black, congestion surrounding. Lower lobe, slight apoplexy at upper part, portions of each sink in water.

Liver: weight 4 lbs. 11 oz.; nutmeg.

Kidneys: right, weight 7¾ oz., was congested, capsule not adherent, pyramids well defined. Left, weight 4¾ oz., same as right otherwise. Both cut firmly.

Other viscus apparently normal.

There was anasarca of lower limbs, and of body up to the nipple. Ascites, 3 quarts; hydrothorax, 2½ to 3 pints.

I present a sketch of the lungs herewith, showing the extent and portions involved.

Case II.—Mary H., æt. 38, of German parentage, housekeeper. One month ago legs began to be œdematous, appeared and disappeared night and morning for two weeks; last two weeks steady œdema. Complained of dyspnœa for five or six years; has had steady headache for last two weeks, during which time she has kept the bed most of the time.

Hæmoptysis began about two weeks ago, spitting it up sometimes in lumps. The last week there has been considerable cough and very little sleep.

Upon examination, found the pulse 100, intermittent and irregular; found also a murmur with the first sound at apex, together with hypertrophy of heart; anasarca and dyspnœa present also. Gave tr. digitalis, 8 ♏ every 8 hours, also tr. perchloride and bichloride of mercury.

Second Day.—Gave 10 ♏ ext. jaborandi fl. every two hours.

Third Day.—Considerable sweating from the jaborandi.

Fourth Day.—P. 90, irregular, T. 99° F. Complains of much pain in small of back. Administered four dry cups over kidneys.

Fifth Day.—P. 84, T. 99° F. Has hæmoptysis, blood light. Gave ext. ergot fl., 10 ♏ every two hours.

Sixth Day.—Hæmoptysis pretty free. Pulmonary congestion present from heart difficulty. Used the dry cups over thorax. Gave ʒss. fl. ext. ergot every two hours, and 4 ♏ tr. digitalis every four hours, also 20 grs. pot. acetatis every four hours. Passed but 8 oz. of urine last twenty-four hours.

Seventh Day.—Increased tr. digitalis to 4 ♏ every two hours.

Examination of urine: sp. gr. 1020, reaction alkaline, high color, clear, and a trace of albumen.

Eve.: P. 90, same; blood coughed is very clear, quantity moderate.

Eighth Day.—Condition same. Ordered 6 oz. stimulants.

Eve.: Hæmoptysis continues.

Ninth Day—No change. Stopped all medicines but stimulants. Ordered spt. ammon. aromat and Hoffman's anodyne, as there was no sleep.

Tenth Day.—Treatment continued, together with ʒ ss. fl. ext. jaborandi, once.

Eleventh and Twelfth Days.—The same treatment continued.

Thirteenth Day.—Gave 10 gr. pot. bromidi every 4 hours and 8 ♏ each of tr. digitalis and can. indica.

Eve.: Patient is getting delirious and weaker constantly.

Fourteenth Day.—Patient died at 5 A. M.

Post-Mortem.—Left lung, weight 1 lb. 15½ oz. Considerable portion of lower lobe is apoplectic, with some pneumonia. Parts sink in water.

Right lung, weight 2 lbs., 2⅓ oz. Upper edge of lower lobe apoplectic. Anterior inferior edge of upper lobe apoplectic. Outer edge of middle lobe apoplectic.

Liver, weight 3 lbs. 2½ oz., congested. Left kidney, 6 oz., congested. Right kidney, 5¼ oz., congested.

Heart, mitral valve calcareous with extreme stenosis.

Tricuspid and aortic valves thickened. Weight of heart, 16 oz.

The third case was in some respects the most interesting of any. Unfortunately, I mislaid my notes upon this case and shall be obliged to give the history in general from memory.

The patient was a man of 28 years; always well till ten months previous to the time I saw him, when he had an attack of pneumonia, but recovered, he said, fully from it, and felt as well as before he had pneumonia; had been steadily at work ever since. There was no family history of phthisis. While at work on one of the city docks, he was taken with hæmoptysis and lost, he said, considerable blood.

This loss of blood kept up for several days more or less, notwithstanding the administration of hæmostatics combined with perfect rest, even to the use of the bedpan. Moist rales could be detected over middle part of left lung anteriorly, together with an increasing area of dullness till it reached an apparent diameter of 2½ to 3 inches. Fear and loss of blood weakened the patient considerably, but after a few days (6 or 7) the hæmoptysis ceased altogether and the patient improved. He had only one or two slight attacks of hæmorrhage for several weeks. Evidences of impaired condition of this lung were not wanting, however, as shown by slight tendency to pyrexia, slight cough, and debility. Five or six weeks had passed by, when a sudden free hæmorrhage from the lungs carried the patient off in a few minutes. The post-mortem showed organs in good condition aside from the left lung. This had a number of small cavities, about the size of peas, filled with a cheesy substance. The middle part of the upper lobe contained a cavity 2 to 2½ inches in diameter. This cavity was filled with a dark debris looking like the remnants of a blood clot. Surrounding this debris was a fibrinous encysting sack which effectually separated it from communication outside. This sack was easily separated from the contiguous portions of the lung, whilst the sacks of the several smaller cavities were very much more adherent to surrounding lung tissue. There had been no communication, apparently, with the interior of this sack in this final hæmorrhage, but at one portion especially did the outside of this cyst show evidences of a very recent deposit of fresh blood. There had, by appearances, been an effort on the part of nature to take care of an apoplectic portion of lung by a process of encysting and absorption. The effort had been not altogether futile, as the cyst was completed and its sanguineous contents largely taken care of; but other changes were meantime occurring in the lung, as shown by the smaller cysts already mentioned. The same changes were apparently at work on the exterior and immediately surrounding lung tissue of the larger cyst till it had involved and weakened a vessel of sufficient size when ruptured to cause death within a few minutes.

I have a sketch of this portion of the lung from memory, but it it was so strongly impressed upon my mind that there can be but a trifling variation.

The contour of those apoplectic portions situated more within the interior parts of the lung assumed in each case the globular or irregular mass shape, while the only portion at the surface of the lung had the characteristic wedge or pyramid shape, with the base toward the periphery of the lung.

The source of the emboli in these cases is a question of some interest. The right auriculo-ventricular orifice in the case of the young man was enlarged, but there were no special evidences of valvular lesions. The marked pericarditis everywhere present, and the heart of such increased size (20½ oz.), together with enlarged kidneys and nutmeg liver, gave a condition of things favoring thrombosis in the veins, as the heart was weak and the blood must have been impregnated with waste materials from sluggish kidneys and liver, inasmuch as the kidneys were doing scarcely half duty. There were here no evidences of phthisis to account for the hæmoptysis by destruction of lung tissue involving a vessel.

In the second case, that of the lady 38 years of age, there was a distinct history of valvular disease of the heart which must have been progressing for several years, as shown by dyspnœa upon exercise. There was also extreme mitral stenosis and thickened aortic and tricuspid valves, as shown by the post-mortem. The irregular and intermittent heart beat was still further evidence as to the heart being the direct cause here. There were no calcareous deposits found save those of the mitral valves.

This case differed from the former in that a slight pneumonia was present in one of the surrounding zones of the infarction, while all other parts were free from it. This pneumonic portion was distinguished from the apoplectic portions by its somewhat lighter color and much more marked firmness, samples of each sinking in water.

The last case had still different features. There were no heart complications, and the patient had been enabled to attend to his work till suddenly siezed with hæmoptysis.

The right lung was in good condition, but the left contained, scattered throughout, especially the upper lobe, numerous little cysts. Making a complete section of the lung you would cut through five or six of these.

In place also of the apoplectic masses of blood with their surrounding congested zones, we find what we consider the original infarction undergoing a process of recovery. The mass had become encysted and its contents partly absorbed. There was no surrounding congested zone, but a friable, light-colored substance surrounding the cyst, which was very easily separable from the lung tissue. The attempt at healing had evidently been supplanted by a retrograde change immediately outside the large cyst which had involved a vessel of sufficient proportions to cause fatal hæmoptysis.

There was evidence of this hæmorrhage only at the upper and inner portion of this cyst, as shown by a very small quantity of dark-colored fresh blood deposited there, the escape being so free as scarcely to have detained any blood at all.

The question arises, Could these smaller cysts have been but metastatic in character, the changes in the healing and absorption of the original infarction being the source of septic emboli; or, could the whole trouble have come from the preceding pneumonia, tubercles being deposited in the terminal pulmonary arteries, the first hæmorrhage depending upon a rupture of such an artery weakened from such a deposit, then at last the process of complete healing of the infarction being abandoned, as it were, on account of progressive phthisical changes. There were small tubercular nodules, the size of a pin-head to half the size of a pea, thinly scattered through this lung.

The patient was ten weeks or so under observation, possibly long enough for most of these changes to have occurred.

The three cases, in toto, illustrate pretty fully the subject of pulmonary infarction, as to—

a. Causes: deficient heart force and valvular disease, and phthisical deposits or septic emboli.

b. Contour of the infarction: irregular, wedge-shaped, and encysted.

c. Duration: from a few days to several weeks.

d. Blood: clear, with cough.

e. Constantly increasing dyspnœa, and frequency of respiration and heart-beat.

f. Rapidly progressive anæmia, thirst, and prostration.

g. Moist rales and steadily increased area of dullness.

h. A lack of any marked pyrexia, together with sleeplessness and delirium.

They also show that, while there was a slight yielding in the severity of some of the symptoms at first, there was a steady progress to a fatal termination, notwithstanding any and all treatment, which I conclude can only be palliative.

DISCUSSION.

Dr. C. N. HEITZMANN, of New York.—Mr. President, while in Vienna, a little over thirteen years ago, I was much engaged in making examinations in this line of morbid anatomy, being lecturer there, especially in this department, and I have seen quite a number of cases of pulmonary infarction.

In the first place, it always struck me forcibly that we should use a word like infarctus, or, if it is Anglicised, infarction.

If we say hæmorrhage in a tissue or tissue-hæmorrhage, it would explain pretty nearly the condition. The writer of the paper applied the word apoplexy in exactly the same sense as infarction; we speak of apoplexy in the lungs, as well as in the brain, liver, kidney, and so on.

So far as I can judge, every process that causes a temporary and rapidly ensuing filling of the blood vessels of a lung will lead to hæmorrhage, and in almost all cases where there is hæmorrhage at the surface in considerable amount we shall see some tissue-hæmorrhage, some infarctus also. As a matter of course, some of the blood escapes into the lung tissue and destroys it. If you look at such an infarctus under the microscope, you see the debris of the lung, and nothing else but blood all round, whereas other portions of blood will escape to the surface and find exit from the bronchioles and bronchi. A simple pleuritic exudate on one side is enough to cause such an accident. I especially remember a case that happened two years ago—a personal friend of mine who had pleurisy on the left side, without fever. although the serous exudate, as the post-mortem afterward showed, was plentiful. This man, having no fever and no warning condition, took a ride one morning; there was no reason to be alarmed, but at nine o'clock at night suddenly blood came forth from his mouth, and he just had time to say, "This is hæmoptic," and in the same moment a rush of blood came and he was dead. The right lung in its upper portion, especially the upper lobe, was found thoroughly destroyed by the hæmorrhage; of course a part of the blood had issued forth by the mouth. It was an exalted case of such hæmorrhage as the Doctor spoke about in his paper.

In this case there certainly was no evidence of heart or kidney disease. It was simply the overflowing of the right lung with blood that caused a rupture of the vessels, and we know that the walls of the vessels, as regards their resistance, are markedly different in different people.

A second and very important cause, so far as my own recollection goes, is heart disease. In the Doctor's first case he mentioned hypertrophy of the heart with insufficiency of the tricuspid; that is a frequent source. Of course, if the hypertrophy of the right heart goes on slowly, the hæmorrhages occur almost constantly for years and years; at the same time, the pulmonary circulation being impeded, a condition arises which Rokitansky, my beloved teacher, called hypertrophy of the lung. In such a condition the alveoli are distended in parts, and the whole lung has a marked rust-brown color, which no doubt is due to the previous slight hæmorrhages, or, perhaps, a mere saturation with the coloring matter of the blood. Such hypertrophies of the lung are, as a rule, combined with the diseases of the right heart, especially insufficiency of the tricuspid valve. I was greatly impressed by a paper read before the New York Academy of Medicine last year by no less a man than Francis Delafield. He claimed that emphysema is an inflammatory disease, and in fact all the illustrations which he gave by means of a stereopticon showed inflammation in the lung tissue, not acute of course, but leading to hyperplasia, either of the kind I just spoke of, hypertrophy of the lung, or tuberculosis.

I opposed the views held by Delafield. I said there is no such thing as inflammation in the genuine primary emphysema at all ; but, if emphysema is a secondary process combined with hypertrophy of the lung tissue, we find both features—inflammation and emphysema. I was assisted in my opposition by the late Dr. Darwin Hudson, Jr. In fact since that time a large article has been published by Rudolph Virchow, who plainly demonstrated that the old views held by Laennec as to emphysema are correct, and there is nothing inflammatory about the process of emphysema. To be sure, in cases like the Doctor's first one, the pulmonary circulation is all the time impeded, and we understand that, temporarily at least, there may be an overloading of the blood vessels, and consequently rupture.

The most common cause of infarctus of the lung is certainly seen in the third case, namely, tuberculosis. It is hardly necessary to say that tubercules are either deposited directly in the larger vessels, or such vessels pass through a cavity filled with cheesy matter, and finally the blood vessels burst simply because, it is almost invariably found, that under these conditions the walls of the vessel are waxy and rather brittle.

Another source of pulmonary infarctus was of daily occurrence about twenty years ago ; but fortunately, since antiseptic surgery is indulged in, is a rarity now-a-days ; this is pyæmia. In this formerly so much dreaded disease, owing to purulent phlebitis, pus-corpuscles were carried into circulation, and, causing embolisms and thromboses in the vessels of the lungs, gave rise to ruptures, the so-called conical infarctus, which were the forerunners of metastatic abscesses or occurred simultaneously with such abscesses.

These occurrences are well known indeed, but I wish to mention a source of hæmorrhagic infarctus in the lungs, in the liver, and in the kidneys, that is not as yet known. The following case occurred perhaps some five or six years ago in New York, under the care of the late Dr. Louis Elsberg—a cancer of the pharynx which had been extirpated by Dr. Ripley, of New York. The man died, if I recollect rightly, four days afterward, and at the post-mortem hard nodules were found in the lungs, liver, and in one kidney. Those that were brought to my laboratory proved to be mostly hæmorrhagic infarctus. After microscopic examination, I was much surprised to find epithelia within the capillaries. If I say that, Mr. President, I am fully aware that you will ask me if I have not been mistaken, and if they have not been detached endothelia. My answer will be, No. The endothelia of the capillaries and the smaller veins were not changed. I could positively say that here were detached, rolled up epithelia, which, owing to their looks, closely reminded me of cancer epithelia. Here, therefore, epithelia were brought into circulation, causing embolism, as it were, in the vessels mentioned, obliteration of certain venous branches, and hæmorrhagic infarctus. Some of the nodules were yellow, and in those necrobiosis had taken place. Such detachment of the epithelia took place either during the operation or after the cancer had been removed; but it looks as if it was done during the operation, and thus at least we get a hint how to explain the so-called metastatic or secondary nodules of cancer. The idea all the time has been that portions of the cancer were detached; but the question was, Are these real tissue particles of the cancer, or is it the cancer juice that is brought into the circulation either into the lymphatics first and from there into the blood, or directly into the blood through venous aspiration? After studying the specimens, I could not doubt that real cancer epithelia are circulating at certain times, which being transferred into another normal tissue causes the formation of secondary nodules. If we knew wherein the infectious power of those epithelia rests, we could plainly account for the secondary cancer nodules. Unfortunately we are not as far as that, since the cancer bacillus, scarcely discovered, is already exploded. We can only say that we do not know yet what makes these epithelia so fearfully infectious; wherein lies the property which enables them to infect their neighborhood and transform it into cancer tissue. Of course, we are far from believing that cancer must invariably originate from epithelia, although in the vast majority of cases it does; but even if it does this, normal epithelia will never directly produce cancer.

I am just studying in my laboratory a melanotic cancer of the skin, which is a rarity, and I can satisfy myself that the normal epithelia first break up in the medullary or indifferent tissue from which will arise cancer epithelia. Most of the pathologists imagine that normal epithelia by a division will directly produce cancer epithelia. This I deny. I can say so the more since I have seen lymph ganglia invaded by cancer in the earliest stages, where the lymph tissue was transformed into multinuclear protoplasmic masses and partly split into epithelia, which shows the way cancer is formed.

TUBERCULAR INVASION OF BONE.

BY GEORGE WACKERHAGEN, M.D.

Read before the Brooklyn Surgical Society, February 16, 1888.

There is no doubt that Tuberculosis is sometimes produced by a specific virus introduced into the lymphatic system and thence carried by the blood to different organs, which may be affected at the same time. That it may be introduced through the alimentary canal by minute quantities of tubercle contained in milk or the flesh of infected animals, or by the inhalation of infected particles through the air passages, is also well known. This external origin, however, does not seem to be the most common mode of infection, for it appears that the individual may possess a tubercular diathesis, even without being an inheritor. This is shown by inflammations sometimes becoming tubercular, when occurring in persons whose general condition is below the standard of health, on account of deprivation of proper food and air and insufficient clothing.

Then again we have tubercle formations occurring in pathological conditions which were not originally of tuberculous nature. Microscopic examinations of lipomata found in an inflamed knee joint, having revealed infiltration by miliary tubercles, giant cells and specific tubercle bacilli.

There is a good deal of difference of opinion as to the nature of the virus. Klebs, Auprecht and Baumgarten describe it as being of the nature of a Bacillus, Schüller and Toussaint consider it a micrococcus, and Koch has announced the discovery of a specific tubercular organism in tubercular structures and in the sputa of phthisis.

Pathologists tell us that simple osteitis, caries and gummata may occasion modifications of the osseous tissue, which, when viewed with the naked eye, present an appearance similar to confluent tubercles at their time of evolution or elimination. So that while we may form an opinion as to the identity of the tissues from their general appearance, the microscope alone can decide the question.

A section of the bone containing a tubercular granulation, upon being examined microscopically shows dilated blood vessels in the periphery which have no connective tissue around them, and the marrow contains no adipose cells. The zone of irritation frequently extends into the spongy tissue, where the osseous trabeculæ are eroded as in osteitis. Phenomena of irritation are also to be seen at remoter situations from the tubercular granulations, which would indicate that osteitis precedes tubercular formations in bone.

In caries the bone corpuscles break down by a fatty degeneration, whereas, in tuberculosis the invaded portions of bone not receiving blood are necrosed and elimination takes place at the time the eruption in a part is completed.

In tubercle of bone, the medullary tissue and cancellated structure are chiefly affected.

The progress of the disease is very variable. A local infection may be followed very speedily by a general tuberculosis, although years may elapse before the disease becomes general, or a general infection may never appear.

To illustrate the prolonged period of incubation after inoculation of tuberculous matter, I quote from a short article in the New York Medical Journal, Nov. 19, '87, page 585. E. Gancher (Rev. de Med.) inoculated Sept. 29, '84, two rabbits with pus taken from a bone abscess of a patient in an advanced state of pulmonary tuberculosis.

The injections were made deep into the peritoneum on the left side of the upper part of the abdomen, and were not followed by any local disturbance. The rabbits were then placed in separate cages and were put under the most favorable hygienic conditions. At the end of two years one of the rabbits showed signs of illness, became very much emaciated and died within three weeks of the onset of the illness. At the autopsy, the spleen and peritoneum were found tuberculous, the liver though enlarged did not present any appreciable lesion, and the abdominal lymphatic glands were neither hypertrophied nor caseous. There was a single caseous mass at the inferior part of the left lung on the surface of the diaphragm, where there was also a recent localized membranous pleuristis. At the time of writing, March 1, '87, the other rabbit seemed to be in perfect health.

With regard to treatment, the only satisfactory plan is to remove the disease by mechanical means, which may also prevent general infection. Even when the infection has become general and several organs are involved an operation is still advisable, so that one source of irritation and drain upon the system may be removed.

After amputation in some advanced cases, a great change for the better has been observed in the general condition of the patient. The advisability of partial and early excision is very generally conceded in all operations upon young subjects, and when the disease affects the ends of the bones. As much of the epiphysical cartilage as possible should be saved.

It may be generally stated that, there is almost always tendency to relapse in cases of bone tuberculosis. Dr. Israel reported at a meeting of the Berlin Medical Society, Jan. 27, '86, the history of a patient on whom thirty-seven operations were performed before a cure was affected. The original injury was a fracture of the skull, in the temporal region, from which a yellow cheesy mass developed and afterwards tubercular deposits formed at the base of the skull. Then the bones of the right foot became affected, subsequently the left second rib and the bones of the left foot. This was finally amputated after eleven operations had been performed upon it.

The following case is here reported as an example, in which tubercular infection was engrafted upon inflammatory lesions of traumatic origin. Josephine R., 2½ years of age, born in Brooklyn, of German parents, fell on the pavement in May, '84, bruising the left knee.

As the injury appeared to be slight and the pain soon disappeared, the parents gave it no further attention until a month later, when it became swollen and painful. Poultices were then occasionally applied, but surgical attendance was not employed until Sept. 25, at which time an opening was made just below the knee joint, over the head of the tibia, and a quantity of dark colored blood slightly mixed with pus was discharged. After this operation the swelling disappeared, leaving a small opening above and to the inner side of the tubercle of the tibia, from which a small quantity of unhealthy pus was daily discharged.

I first saw the child in consultation, Oct. 15, 1884, and upon examination with a probe discovered two sinuses, one taking a direction obliquely upwards toward the internal condyle of the femur, and the other extending downward and inward. Each sinus was about an inch and a half in length. On the 19th of October, an operation was performed for the removal of the diseased bone, the small opening in the head of the tibia was enlarged, exposing to view the cancellous structure, completely broken down from caseous infiltration. This was thoroughly removed by scraping with a Volkmann's Spoon, leaving only a very thin shell of bone which was necrosed and detached from the periosteum, involving upper fourth of tibia. This was also removed, leaving a thickened periosteum on the inner surface, of which some very small plates of new bone could already be discerned. While operating in an upward direction, an opening was discovered leading into the knee joint, and it was found that the epiphyseal cartilage was for the most part destroyed by the tubercular infiltration.

The incision was then carried upwards and inwards, dividing the internal lateral and capsular ligaments. Upon exploration of the knee joint the crucial ligaments were found almost entirely destroyed, and the intercondyloid space filled with tubercular granulations. These were scraped away and also the diseased portions of the epiphyseal cartilage and the joint thoroughly cleaned and irrigated with Bichloride solution 1 to 1000.

A rubber drainage tube was introduced into the joint, and the other portions of the wound packed with iodiform gauze.

There was no inflammatory reaction and the temperature did not go above 99° F.

The child's general health improved greatly after the operation, the wound closed gradually and the bone was reproduced.

The leg could be flexed to a right angle, and extension was normal. Bauer's hip joint instrument was applied, for the purpose of continued extension. The shortening was an inch and a half on the 8th of April, 1885.

This general improvement continued until May, '87, when the mother informed me that the child complained occasionally of pain in the joint and that there was redness of the skin in the region of the old scar. Upon examination, I could find no indication of returning disease of the joint, but advised that the patient should not be permitted to use the affected limb.

My directions were carefully followed, but in a few weeks a slight swelling appeared near the head of the tibia, which discharged pus.

On the 16th of April, another operation was performed by following a sinus, which opened at the original location over the anterior surface of the head of the tibia and curved around the inner tuberosity of the new head of the bone.

The joint was sufficiently opened for inspection by dividing the internal ligaments, and tubercular deposits were found on the internal margin of the inner tuberosity of the tibia. In other respects it was free from disease.

Having removed the diseased bone, the ligaments were united with cat-gut, and a drainage tube was placed along the outer side, extending from the popliteal region and winding around to the front of the tibia. The skin wound was united and the knee put up in straight position, and antiseptic dressings applied. These dressings were not changed for two weeks.

The temperature rose to 101 on the second day after operation, but on the third day it became lower and afterwards remained normal.

Appetite and health gradually improved and she began to walk on the limb two months after the operation. She still retains the power of complete extension and can flex the leg to a right angle. The affected leg is shorter than its fellow, but this is hardly noticeable when the patient is standing or walking.

DISCUSSION.

Dr. Wight :—I have generally exsected the joint and got union, and I do not remember one of my cases bent as much as this one presented. One boy on whom I operated is now running around the streets of Brooklyn and I doubt if you could pick him out from among a lot of boys—he had tuberculosis of the knee-joint. Of course there is a difficulty about the limb; there is no knee left, it won't bend up; it is one bone from the hip to the ankle. My cases have been of a nature that required taking out the entire knee-joint, but the limping in all of them is partial compared to this one. There is one girl whose leg I exsected at the knee-joint, not directly for tubercular disease; I removed three inches of the fermur, and she can walk with but very little limp and she can earn her living. She wears a shoe with a lift about as thick as my hand and she walks nicely, and does not limp more than that child. As a rule I have cut off cartilages, mostly off the lower end of the femur, and everything, but I do not know that I would do that unless they were diseased.

There are some points connected with tubercular disease of the joints that we cannot well substantiate. The last case I operated upon was this year, and if I had had the consent of the friends, I certainly would have amputated the thigh, could I have known the wonderful extent of the disease which I could not know before the operation. There was a hole directly through the condyloid end of the femur that I could put my two or three fingers through, and I put my drainage tube through that. But that is not my point. My point is: where there is a new traumatic inflammation of that kind set up; where the synovial membrane of the knee-joint has been thoroughly removed; where the cartilages have been removed giving you as nearly as possible normal bone, if there is tubercular disease left there, that you cannot remove without the entire destruction of the limb—I am not going to state this dogmatically now, but I am going to state it provisionally—so far as my experience goes if all that is removed and if there is a new traumatic inflammation set up, with new cells, they will obliterate the tubercular disease; will destroy what is left of it; although it be so extensive that you cannot entirely remove it.

That is in the line of natural cure of tubercular disease, and I have considerable evidence that goes in that direction.

Some time ago I had a little girl under my care—she was about four years of age—who had white swelling of the ankle-joint with extensive change in the tarsus and in the lower end of the leg bone a large proliferating ulcer; she was sent to me for amputation. At first I could not make up my mind to this. I put the child under treatment, with good hygiene and I sprinkled the ulcers freely with the powder of iodoform. I then made an ointment of about 10 to 12 parts of iodoform with simple cerate and kept the ankle thoroughly wrapped with that, and it began to improve and kept on until there is not a sign of the disease left except the scar; the foot is slightly extended but quite firmly ankylosed and the ulceration has gone away;

the inflammation has subsided and the girl is in very excellent condition. I am inclined to think that iodoform is an anti-tubercular remedy if you can apply it so that the iodoforn will reach the microbe.

I do not quite understand why traumatism in one will develope tuberculosis and traumatism of the same kind in another will not. It is singular why that should be so. The microbe don't get in from the wounds; the microbe is there and I don't understand why the bruise should make it grow. My theory is that trautmatism should take it away; I have seen cases of that kind.

DR. ROCKWELL:—I would like to ask Dr. Wight if he pays no attention whatever to the epiphyses in exsection of the knee-joint?

DR. WIGHT:—No, sir; my cases were such as required that, otherwise I would not remove them.

DR. ROCKWELL:—In these cases you have removed the whole of the epiphyses of the fermur?

DR. WIGHT:—Yes, sir; if that is diseased; I endeavor to take away all the disease that there is. Almost invariably where there is true tubercular disease and white swelling of the knee-joint itself the condyles of the femur are affected; and almost invariably the upper part of the tibia after a long time is invaded.

My theory has been for a long time, that bone did not grow altogether by their epiphyses; it is a mistaken idea; they grow interstitially very much more than by epiphyses. I have a case on record where I examined a girl who had grown up to be 18 or 19 years, who had lost the lower epiphysis of the ulna when a baby. You know there is no epiphyses to the upper end except the olecranon, and yet that bone grew very nearly to the length of the one on the other side, and it must have grown interstitially. I think to save the epiphyses unnecessarily is a mistaken idea, and I believe that ankylosis is the only way of reaching the best result in those cases. I generally remove just enough of the tibia to set the other bone in and then remove all that is diseased of the femur. If there is so much disease that I cannot take it away without amputating, then I wait for the tubercular disease to be extirpated by the new disease.

I would save the epiphyses if I could, but I think it has been overestimated as a means of growing bone.

DR. ROCKWELL:—Have these cases of yours of exsection of the knee-joint, where you removed a portion of the shaft—been under observation for a sufficient length of time?

DR. WIGHT:—For a certain length of time; not long enough, and such observations would be entirely unreliable. Why: because in all cases of chronic disease of the joints the bones do not grow so fast, and such observations would be unreliable.

Dr. Pilcher:—I would like to reverse the way in which Prof. Wight has put the matter as to the reasons for the production of tuberculosis, when he asks why is it that in certain cases there is tuberculosis, and in other cases there is not. I would like to put the question more in this way: Why, in 999 cases out of 1000 an ordinary contusion or sprain leaves no evil results and is quickly recovered from, while in the 1000th the traumatism, though no more severe than the other, is followed immediately by the development of local tuberculosis? It seems to me that is the question to answer rather than the other one. My own theory in the matter is just this: That the tuberculosis bacillus may get access to our circulating fluids and by them be taken and transferred to various portions of the body, and that ordinarily the ordinary vital resisting power inherent in the living tissue is sufficient to resist and to destroy this germinal matter; that there may be a time, however, when the constitutional condition is at an ebb and it needs but little local depression somewhere to produce at that particular locality a condition which no longer enables the tissues there to overcome and to destroy a germ when it is brought to that point, but on the contrary makes it a field in which it finds the conditions requisite for its development, as the result of local depressed vitality, and it is this traumatism which produces this local depression, a temporary depression, but continued long enough to enable foreign material to gain a foot-hold and proliferate.

Now, whether there will be in the after-history of that case a gradual restoration of reparative energy so that there may be a spontaneous overcoming and destruction of this foreign material which has gained access to it, or no, depends upon three things: It depends first upon the ability of the individual to recuperate.

It depends upon the amount of attention and care which is given to the local conditions, fostering the nutritive processes at this point.

It depends upon the peculiar condition of the tissues in which the local disease has been placed.

Now, when any case of tubercular invasion of bone presents itself to us, it seems to me it is necessary for us to take into consideration all these three conditions.

In the great majority of cases, especially in young children, we have every reason to believe that if you will only give the local tissues a fair chance, they will spontaneously recover sufficient reparative energy to overcome and produce spontaneous cure. The case which Prof. Wight has detailed here, of spontaneous recovery from caries of the tarsus, can doubtless be duplicated by each one of us. It is only a few years since Gibney in New York published a large series of similar cases, so much so that he has attempted to establish a general rule that caries of the tarsus in children are never to be subjected to operative interference. And we do know that the great mass of orthopedic cases are tubercular cases, and that their treatment is simply to secure in the locality affected the best possible conditions for the action of this natural, spontaneous, restorative tendency, and then get well. Notwithstanding there has been destruction of bone, notwithstanding that there has been suppuration and notwithstanding that there has been abscess, they do get well without any occasion for interference upon the part of the surgeon.

Now in the case presented by Dr. Wackerhagen this evening, it would seem from the account and from the after history of the case as well, that there was ample reason to come to the conclusion that there would be no spontaneous restoration here. The disease being in the head of the tibia, its progressive tendency, notwithstanding there was every care given to it ; its invasion of the knee-joint proper, and, notwithstanding after the first operation had been performed and so long a time kept in the best condition for repair—the disease breaking out anew—all show that that case was one that demanded attention. It seems to me that in that case the Dr. has done just exactly the right thing in the way of operative work, and that is, when dealing with local tuberculosis, not to take into consideration the function of the parts so much, as to take into consideration the existence of a disease and the necessity of removing the diseased tissues, whatever part was invaded.

Now I should question very much the inference which we would be likely to make from the remarks of Prof. Wight as to the result in this case not being so good as in a case where the knee-joint had not been preserved, and thorough ankylosis of the bones of the leg and the femur had been brought about. The ability to use the limb is certainly greater where you have ankylosis, but this little child has her whole life before her and there is every reason to believe that the strengthening of that joint will be greater and greater and that after a time she will not only be able to go without the support and not limp, but she will have a reasonably movable joint, which is certainly a desideratum to be secured and one which may be secured at the expense of the simple wearing of some support for a time.

Dr. Wight :—My statement was that comparing the two cases, or such cases, that patients that I had had did not have so much limp but that they did not have the flexion, and the advantage in that way, which might be a very great advantage at times—but what the general result would be, that is another question.

Dr. Wackerhagen :—It was my expectation that the operation in this case would result in ankylosis, indeed I should have preferred it, for the reason that I fear that the joint will not be as strong as it ought to be. If she is unable to walk without a brace after two or three years I intend to remove the articulating surfaces at the knee-joint, in order that mobility may be arrested.

I would like to ask the opinion of the Society as to the advisability of operating for tuberculosis in the joints, where both the patients lungs are involved. I have a patient 23 years of age now under observation, who has tuberculosis and a well-marked tubercular infiltration of one knee-joint, the patient is otherwise in fair condition for operation, I have advised amputation above the knee, believing that it may also check the progress of the disease of the lungs.

Dr. Wight :—Those cases of white swelling, after amputation will very quickly recuperate. I have seen such with very excellent health, and then suddenly drop right away.

Dr. Pilcher :—I have had the same experience. Cases have been reported in which there was apparently perfect restoration to health, which certainly remained for a considerable length of time. In one case life was prolonged for over two years, although the patient finally did die of pulmonary disease.

Dr. Wight :—I have in my mind a case where I amputated the right thigh about the middle, where the patient had excellent health for three or four years and then rapidly went down.

But the question that interests me most, next to the one of surgical interference, is as to whether we are going to have any remedy in a medical way to reach what we cannot reach in a surgical way. The sulphur dioxide mixed with water does not seem to have carried out its reputation ; alcohol would be an excellent thing if it was not for its complications, but we have nothing that answers the requirements.

W. M. THALLON, Secretary.

AMPUTATION OF THE THIGH FOR GUN-SHOT WOUND OF THE KNEE, AFTER TWENTY-FOUR YEARS.

BY J. S. WIGHT, M.D.,
Professor of Operative and Clinical Surgery at the Long Island College Hospital.

Read before the Surgical Society of Brooklyn, June 7th, 1888.

January 29th, 1885, James McHenry, forty-eight years of age, was, at my request, admitted to the College Hospital for the purpose of having an amputation of the right thigh. He received a gun-shot wound of the right knee at the first battle of Bull Run. The ball entered just in front of the centre of the external condyle of the right femur, and passed inward and downward through the knee-joint, coming out at the lower and internal part of the popliteal space. It was supposed to be a spherical rifle-ball. The patient lay two days on the field where he fell, and during this time he received no aid. He was exposed to the heat of the sun by day, and at night he suffered greatly from the cold. And when at last he was taken to the field hospital, he refused to have his limb amputated. Then he had his knee treated with simple dressings. After eight months he began to walk with crutches, which he used about three years. From that time till his admission to the College Hospital he walked with a cane. Since the injury the knee has been very painful, and at no time has he been free from pain. During the three years before I saw him the pain had become more severe, and at times it seemed as if he could not endure it any longer. The general health had gradually and notably failed; he was losing ground all the while. There was considerable deformation of the knee, the hard parts being enlarged and the soft parts being atrophied. The circumference of the knee was about one inch greater than that of the other side. The limb was bent at the knee, so that the leg and thigh met at an angle of about 155 degrees. The anchylosis was not quite complete, there being slight flexion and extension of the leg, whose rotation had been lost. If there had been no pain, he would have had a useful limb, with moderate disability; but the pain was so severe that he could no longer attend to any business.

I had advised him to enter the hospital in order that I might amputate his limb, and yet I thought it would be right and proper to make a final effort to subdue the pain and try to avoid an operation. Anodynes, alteratives, absorbents, and tonics were administered, but they did not seem to produce any favorable effect; in fact, the pain became more severe, and the ability to bear it seemed to grow less. My patient was in a most pitiable condition, and looked as if the sufferings of years had been written in legible characters on his face. At last he begged to have his limb amputated, and this indeed appeared to be the only thing that could give him relief.

On the 18th of February I amputated the thigh just above the middle, under antiseptic precautions. Antero-posterior flaps were made by transfixion. After ligation of the blood vessels, the sciatic nerve was drawn out about three inches and cut off with a pair of scissors. This expedient will generally prevent the formation of a painful nerve-end in a stump. Some pains were taken to save periosteal flaps. After the dressing there was considerable oozing of blood, due to the enlargement of the vessels that supplied the diseased knee. During the period of repair the following points were of interest:

The temperature, with two exceptions, varied from 99° to a little over 100°. At one time, on two successive days, the afternoon temperature was 102°. At another time, on two successive days, the temperature was 103°. These elevations of temperature were such as may be caused by the absorption of products of inflammation. The pain after the operation was as great as ever; in the course of a few days it began to subside, and at the end of ten days there was decided relief. He felt his foot, leg, and knee just as if they were still on. The great strain on his nervous system slowly went away. The expression of distress on his face gave place to one of relief. The lines and furrows were obliterated, so that he appeared altogether different. He improved generally, and by the first of April he was able to get out of bed, and was soon going about on crutches.

The leading pathological condition appeared to be a proliferation of the connective tissue of the general structure of the knee The irritation that was initiated by the gun-shot, and that at the outset produced inflammation, continued in some degree during all the supervening years, from the battle of Bull Run till the time of amputation. And it is reasonably certain that this was the cause of the increase in the connective tissue, which slowly compressed the nerves, producing the ceaseless suffering of the soldier, who now has relief, for which he gladly gave the greater part of his limb.

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EXTRACTS FROM A LECTURE ON CORRECTION OF IRREGULARITIES OF THE TEETH.

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Delivered before the Brooklyn Dental Society, February 27th, 1888.

Mr. President and Gentlemen :—A few years ago the art of correction of irregularities of the teeth was but little understood. A few brief notes and a small number of devices, most of which were rude and clumsy, were all that the text-books comprised. Of late years, however, this branch of dental science has made rapid progress, and it is now considered to constitute one of the most important specialties of the profession. Indeed the advances made in knowledge on this subject are of such a character that it may be safely said that no deformity caused by irregular teeth exists that cannot be remedied by one who has mastered this branch of dentistry.

The highest attainment in this art is not the ability simply to move teeth, but the skill necessary to render the improvement permanent.

Nor is this all. Those who aspire to a high place as regulators must be able to achieve the greatest degree of æsthetic improvement in combination with the best antagonism that is possible in any given case. But that phase of the subject opens so extensive a field for consideration that I shall not attempt to treat it on this occasion. It will, however, be found treated at considerable extent in my forthcoming work now in press. To substitute beauty for deformity and symmetry for irregularity, is no mean achievement, but I now propose to treat only the practical aspect of the subject. I shall also confine myself to describing the simplest means to ends, not entering the domain of capital operations, except perhaps in a casual way.

It has been stated, by a dentist of some distinction, that "after the teeth have been made to assume their proper places, in the majority of cases they do not need even a silk ligature to hold them there." This opinion is not in accordance with my experience, except in the cases of small children. In some adult cases it is true that, when the antagonism is favorable, it affords a sufficient force to retain the teeth in the new position; but this condition is so rare that it may be called exceptional.

On the other side, it has also been asserted that it is almost impossible to cause teeth that have been moved to remain permanently in the new position by any means; such failures are frequently the result of ineffectual attempts at regulating with strings and elastics, which, either by plowing beneath the gum or by slipping and being replaced many times, have brought about a condition of the sockets that prevents calcification of the tissues. The most frequent cause of such failures, however, is overcrowding of the teeth.

One of the first and most important steps in regulating teeth is to take measures to do away with such a condition. This is especially necessary before placing retaining devices. If an overcrowd is permitted to remain, no matter how successfully the teeth may have been arranged, the operation will almost invariably prove a failure in the end, for the teeth will not often remain in place after the retainer is removed. For this reason, the necessary room must be made, either by extraction, by widening the arch, or by readjusting the antagonism.

If this point is neglected, the only method of maintaining the arrangement of the teeth is the wearing of a retaining device for an indefinite period, perhaps for life, but in twenty-five years' practice I have found not more than a half dozen such cases.

The large and clumsy retaining mechanisms formerly used are not only inconvenient to wear, but are now unnecessary, as light and delicate fixtures can be made from which better results are obtained.

These are especially preferable when it is desirable that they should be worn for any long period. This period may vary from three weeks to three years, or even more, but usually a few months is sufficient. It is always more injurious to remove retaining devises too soon than to wear them too long. It is absolutely necessary that they should be kept scrupulously clean, and this point should be kept in view in their construction.

Besides the matter of overcrowding, the other considerations which decide the length of time for which a retaining device should be worn, are, the age of the patient, stage of development, number and position of the teeth, and the occlusion of those moved. Heredity also must be taken into account; for, if the irregularity be a peculiarity of the family line, the tendency of the teeth to resume their old position is sometimes so strong as to render the permanent use of a retainer imperative. Fortunately, it is possible to provide for such cases devices that can be worn with little or no discomfort or injury, provided, as has been said already, that they are kept scrupulously clean. When removed for cleansing, they should be immediately replaced; otherwise the teeth may begin to move toward their former places, and require to be forced back again, thus retarding the development of the supporting tissue. For this reason, with some children, when practicable, a retainer that can be cleansed without removal is sometimes preferable to a detachable fixture. Small and delicate skeleton devices, made of flat or round wire anchored into cavities or soldered to ferrules cemented to some tooth or teeth, present the minimum of inconvenience.

When regulating clamp-bands are to be temporarily used as retainers, they should not be bound too tightly on the teeth. When used as anchorage for other devices during an operation for regulating, however, a very close fit is admissible, as the necessary changes of position are generally sufficient to relax the strain upon the dental tissues. Ferrules properly made and set with phosphate of zinc upon the teeth, though fitting tightly, do not bind them, and are therefore not injurious, even if worn for a considerable period, except in cases where the patient through indolence or ignorance permits the device to remain so long uncleansed as to admit of the accumulation of débris under its edges.

Briefly, the necessity for strong retaining devices, and the duration of their use, are governed by the molecular changes in the tissues after regulation. When new cells and tissues have replaced those that have been broken down and passed off by nature, the reactive tendency will generally disappear and the retainer become unnecessary, provided, as already said, there is no influence from overcrowd or from hereditary tendency present; provided also, it may be said, that there is not too much space, which would cause a tendency to lateral movements of the teeth.

Patients contemplating absence or travel should, of course, be provided with duplicate retainers, so that in case of loss or injury of one, the other may be substituted before the teeth go astray. It is also judicious for the operator to preserve an accurate cast of the case at the time of the patient's departure. Neglect of these precautions has sometimes led to trouble.

The plans for construction of retainers are numerous, but the principles involved are few, and generally easy to understand and simple to carry out.

The devices may be made of hard rubber or gold; if of the latter, they are of plate and wire, which should never be less than 18 k. in quality. If solder is used, it should be not less than 14 k. for large pieces, and 10 k. for small.

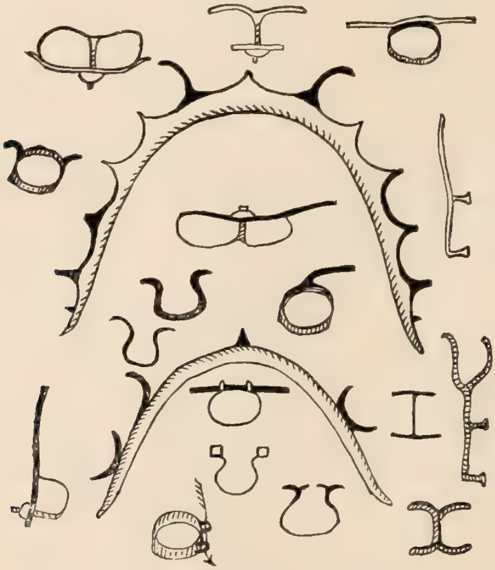


FIG. 1.—Various forms of delicate gold retaining devices.

One of the simplest of these devices consists of a wire bent in the "figure of eight" form, twined around and between the teeth. This I do not commend, as it is insecure and uncleanly. It is, in fact, no improvement on the crude devices used for tying loose teeth by the ancient Phœnicians, six hundred years before Christ.

With these preliminary remarks, I will now proceed to the description of some of the regulating apparatus that I have devised and found useful. One of the most important is the screw clamp-band, which is used both as a regulator *per se*, and as an anchorage for other devices. The band consists of a thin ribbon of platinum or 18 k. gold, about one-sixteenth to one-eighth of an inch in width, having a nut soldered to each end, one smooth-bore, the other threaded, both of which are connected by a screw having a square nib or a globular head with a hole through it for a key. The nuts are single, double, and triple, and may be located as shown (in Fig. 2), or duplicated and placed oppositely. When used as anchorages for other devices they are furnished with hooks, staples or rings soldered to them as a means of attachment, all of which I published several years ago. See Fig. 3.

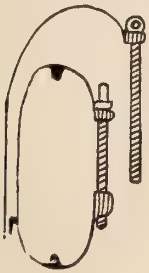


Fig. 2.—Clamp-band and Splice.

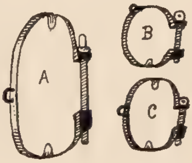


Fig. 3.—Anchor-bands.

In using this device, the band is first bound around one or more posterior teeth that are suitable for anchorage on each side of the mouth, the screws lying outside and longitudinally with the gums, as in Fig. 4. The object of placing the screws on the buccal side of the teeth is to prevent irritation of the tongue. There are cases, however, in which it is necessary to place a screw on the lingual side.

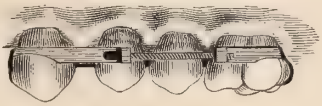


Fig. 4.—The longitudinal screw clamp-band, as applied for moving a cuspid.

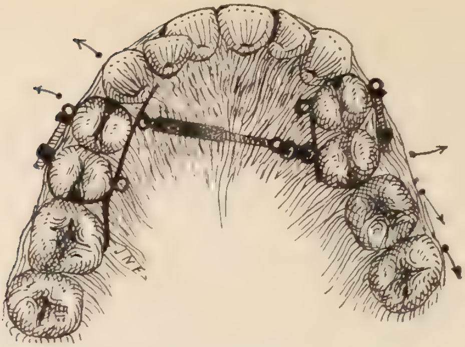


FIG. 5.—Clamp-bands in connection with a cylindrical-jack as applied for moving opposite teeth.

Fig. 5 illustrates a device consisting of two anchor clamp-bands and a swivel screw-jack connected by means of staples and rings. It was successfully used to correct the irregularity shown in the engraving. Notice the obliquity of the force to accomplish at one effort the moving of the right cuspid and first bicuspid to make room for the lateral and the swinging outward of the opposite bicuspids.

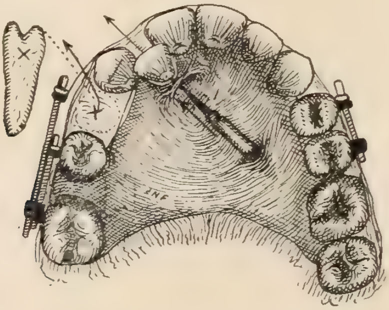


FIG. 6.—Anchor-plate fixed with anchor bands.

Fig. 6 illustrates a device for securing sufficient anchorage for moving a single tooth, and consists of a plate and a jack-screw. The plate is made to cover the roof of the mouth, fitting between the second bicuspid and molar, and fastened to the side teeth by means of a clamp-band on each side, which are vulcanized to it. I sometimes apply these bands independently, however, as shown in Fig. 7; the screw-jack is also vulcanized to the plate.

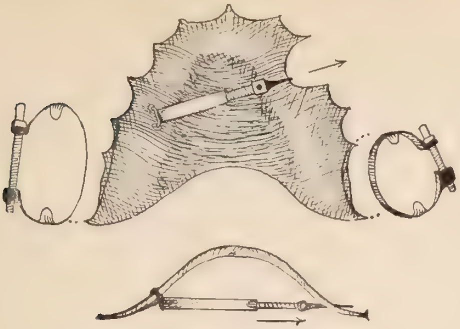


FIG. 7.—Anchor-plate with independent anchor-bands.

Having extracted the first bicuspid, and the anchor-plate in position, Fig. 6, the cuspid in this case was drawn back to the second bicuspid by means of a gold splice-band caught on a hook on one side of the anchor-band, and connected to the posterior nut on the buccal side of the anchor-band by means of a long screw, as shown. The lateral was forced into line by means of the spindle screw-jack, the extremity of which passed through a hole in a small ridge on the plate just behind the tooth.

A set of small devices is here shown which I have denominated tail-jacks, because of their wire appendages. These are applicable to nearly all kinds of anchorage devices. There are several varieties and sizes of these jacks, as shown in Fig. 8. One variety is intended for pushing; the others, for pulling. The tail-like appendages are of platinum or gold wire, soldered to different parts of the jack at the end of the barrel opposite the spindle; but on the swivel-jacks the draught wire is at or near the opposite end of the barrel. The object of these tail wires is to fasten the jacks quickly to any plate by passing them through holes drilled in it, and then bending or heading them down on the opposite side, or twisting the extremities together and then hammering them into countersinks cut into the back of the plate.

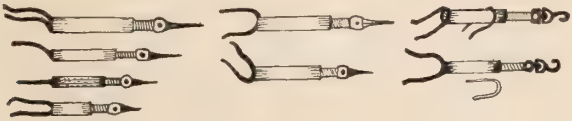


FIG. 8.—Tail-jacks.

They should be connected firmly with the plate, but not necessarily with the rigidity caused by the vulcanizing process. With the push-jacks, it is necessary to anchor them to the plate so that the main strain shall fall on the side of the plate opposite to the spindle end. With the draw-jacks it is different; the fixed point in such cases should be on the side of the plate next to the tooth to be moved, while the opposite end should be loosely, yet firmly attached by the tail wires; but the same end may be attained by independent staples.

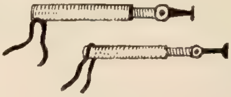


FIG. 10.—Jack-head tailed jack-screw.

Jack-head screws are sometimes substituted for the spindle-headed screws. The head, which is nearly an eighth of an inch in diameter, will so bear on the tooth that it will not easily slip to one side. The object of the tack-head is to render it unnecessary to use a pit, in the tooth pressed against, or a ferrule on it.

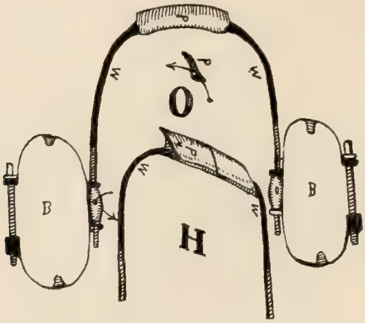


FIG. 11.—Gold inclined plane of the upper jaw.

Clamp-bands are sometimes practicable for holding in place regulating devices acting upon the principle of inclined planes. I have devised several modifications, but they all act upon the same principle. One consists of a U-shaped wire, each extremity of which is screw-cut, as shown in H, Fig. 11, having also a piece of plate, P, soldered to the anterior portion, which serves as an inclined plane to bite on. The device entire is shown in O. A modification of this device is shown in Fig. 13.

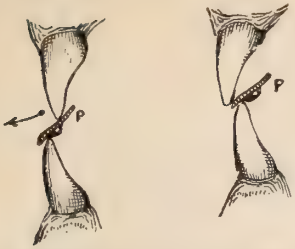


FIG. 12.—Section view of the inclined plane showing its relative position to the teeth before and after the operation.

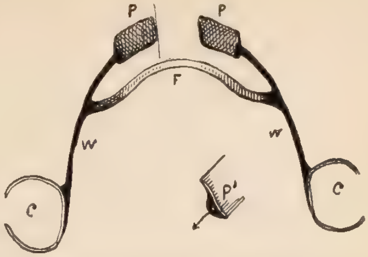


FIG. 13.—Double inclined plane made of gold.

I have still another modification of this device differing in the means of anchorage of the U-wire, consisting of gold thimble crowns cemented upon the side teeth.

Continued Force.—It has been asserted that I advocate only those devices that act upon the principle of the screw. It is true that I have written and lectured many times upon this class of devices to show their importance and urged their use, because in most cases, especially for patients of fifteen years or older, I regard them as the most scientific, because of their accuracy, ease of management and avoidance of causing pain ; but the statement that I hold other classes of devices as useless or improper is not true. I have many mechanisms depending on other principles than the screw, which I have found valuable. A few of these I will describe, but before doing so I will call your attention to this bottle of some three or four hundred different regulating devices, made of gold. As you will see, they are so delicate and small that there is only a teacup full of them ; now contrast in your minds the bulk that such a number of the clumsy devices as usually made would make ; a half bushel would be necessary to hold them. The common notion however, that continued force for adult cases can only be applied by clumsy devices is an error, they may be as delicate as these others.

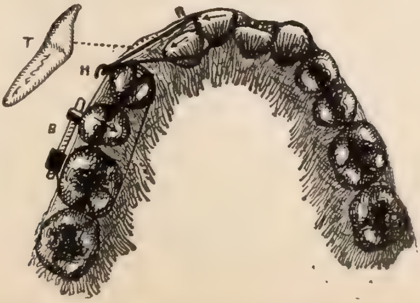


FIG. 14.—Gold Anchor-band and elastic rubber ring, as applied for moving molar teeth.

Fig. 14 illustrates a device used in the case of a boy of eleven, who had lost the left lower cuspid, and whose incisors were yet in a jumbled condition. They were drawn to place by an elastic and a clamp-band, having a hook upon it anchored around the two left bicuspids and the first molar. After extraction of the left lateral, the hook being thus firmly anchored, the rubber ring was stretched around the two centrals, and caught upon the hook as shown in the figure.

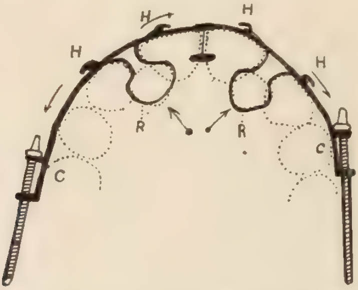


Fig. 15. Double triplex-acting device for drawing into line two instanding laterals.

To draw to line instanding incisors, I sometimes make use of a long-band having several hooks, H, and two elastic rubber rings, R. R. cut from tubing as shown in Fig. 15, In operation the long-band is screwed to anchor clamp-bands fastened on the side teeth, similarly to those shown in the preceding picture, after which each rubber ring is caught first on one hook and carried over the top of the long-band, thence around the instanding tooth and out again over the top of the long-band, where it is caught upon another hook as shown. This device is effectual for drawing to line two instanding laterals at the same time.

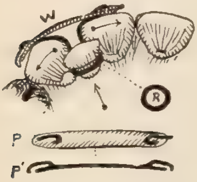


Fig. 16. Single triplex-acting device.
Anchored by strings or wire.

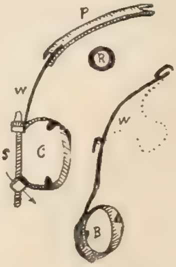
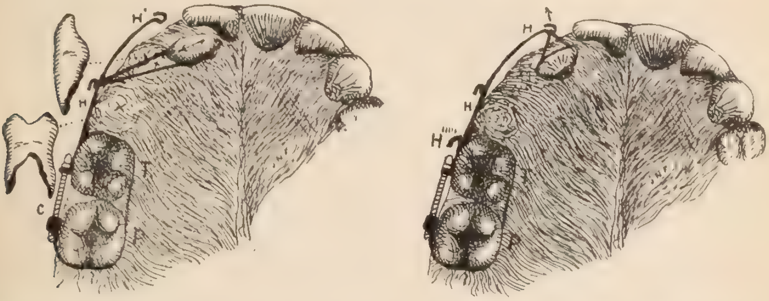


Fig. 17. Triplex-acting devices.
Anchored by bands.

Fig. 16 illustrates a device for using a single elastic rubber. It is simply a strip of plate about an inch in length, having on each end a hook over which is stretched an elastic rubber ring, which extends the entire length of the strip and around the instanding tooth. When the shape of the teeth will not permit the device to rest in place it may be soldered to an anchor-band as shown in Fig. 17. The arrows indicate the three directions that the three teeth will take by one elastic.



Figs. 18 and 19. Gold anchor-band and extension-rod for adjusting elastic rubber rings ; two stages in the operation.

This illustration represents a device used in the case of a girl, ten years of age, whose right lateral erupted in the left posterior position, as shown. It was apparently crowded out of place by the presence of the deciduous cuspid. This tooth and the first molar (deciduous) being extracted, the irregular lateral began to move into line, but suddenly became stationary. It was finally brought to place by the above mechanism, consisting of a clamp-band, C, with a long arm anchored to the molars, T. and P. Upon the arm extending anteriorly are two hooks ; upon the hook marked H was first caught an elastic rubber ring, thence it was stretched over the lateral incisor as shown, which was then drawn from behind the central, after which the elastic was transferred to H· and drawn outwardly as shown in Fig. 19.

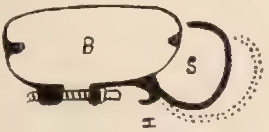


Fig. 20. Hook, spring and anchor band.

Fig. 20 illustrates a spring wire hook soldered to an anchor-band for drawing back a cuspid. I sometimes use a cantilever device made on a similar principle for turning teeth. It consists of a wire-arm soldered to a clamp-band, and separately a ferule having a hook on opposite sides. Two elastic rubber rings are caught upon the hooks on opposite sides of the bridge-wire, thence stretched and caught upon the hooks on the ferule set on the tooth operated on.

MEMORIAL PRESENTED TO THE KINGS COUNTY MEDICAL ASSOCIATION, JUNE 5TH, 1888.

BY W. H. THAYER, M.D.

Dr. Chauncey L. Mitchell died at his home in this city on the 8th of May, 1888, after a long illness, which had caused his relinquishment of medical practice for the last six years. During this period he has been able to drive out and to spend his summers in the country, but his professional brethren have rarely seen him.

Dr. Mitchell was born in New Canaan, Connecticut, November 20th, 1813, although his parents lived in White Plains, N. Y. The good blood of many generations of Puritan descent ran in his veins, from the arrival of the first Mitchell in Boston in 1635; and his mother was a Silliman of Connecticut. His life has well sustained the credit of both families.

He graduated at Union College in 1833, and began the study of medicine in New York, receiving his degree of M.D. at the College of Physicians and Surgeons in 1836. He was then House Physician in New York Hospital for a year, after which he went to Europe to continue his medical studies, which he did principally in Paris.

In 1839 he began practice in the City of New York, but removed to Brooklyn in 1843 or '44, where he continued during the remainder of his busy and fruitful life.

His professional standing was good from the outset, and in 1840, soon after entering upon practice, he was appointed Professor of Obstetrics in Castleton Medical College, Vermont. At that period there were country medical colleges in almost every State, which were not only well attended, but well taught. They had few clinical advantages, but they had the instruction of some of the best men in the United States. Many young men of thorough education, who had established themselves in large cities, got their earliest experience as medical teachers in some of the country colleges. Vermont had two schools—the Castleton Medical School, and the Woodstock School, known as the Vermont Medical College. And in their faculties were such men as Willard Parker, Alonzo Clark, Elisha Bartlett, Robert Watts, and John C. Dalton, who, like Dr. Mitchell, left their city business for two months every year, to practice in lecturing, and furnish the most advanced scientific instruction to hundreds of young countrymen.

Dr. Mitchell held the Castleton professorship till 1845, and that he filled it creditably it is hardly necessary to say. Whatever he undertook he applied himself to most conscientiously and intelligently.

Since his resignation of the Castleton chair he has confined himself to work in Brooklyn, where he acquired a large practice among the most influential people of the city, growing with its growth from a small town to a great city of nearly 800,000 inhabitants.

The Brooklyn City Hospital was opened about the time Dr. Mitchell became a resident of this city, and he was one of the original board of physicians and surgeons.

He was one of the founders of the Long Island College Hospital in 1859, of which he continued to be a Regent during his life.

He was an honored member of the Kings County Medical Society, and three times its president. An active member until ten years ago, since when he has been seldom seen and less often heard there, so that to the youngest generation he may be a stranger. By those who are nearer his own age he is freshly remembered, for his intellectual keenness, quick observation and good judgment, his thorough study and large experience, his modesty, his firmness of conviction, his uprightness, and his uniform courtesy. He was pre-eminent as a consulting physician, and it was in that relation that most of us knew him best. It was a pleasure to see his careful examination of a patient. It was a satisfaction to know that in summoning him to your assistance you had come to a living spring of knowledge. It was an added gratification to keep him for half an hour after the discussion of the case in hand was finished, discoursing on medical subjects--one of those instructive occasions always looked forward to with pleasure and always remembered with satisfaction.

Dr. Mitchell was a man respected alike within and out of the profession, trusted by all as a physician, and relied upon as a good citizen. Actively instrumental in every enterprise which belonged to our profession, filling nearly every place of honor in the gift of his brethren, and identifying himself with institutions of public interest: as the Long Island Historical Society, of which he was an original member, long a Trustee, and, at the time of his death and for years before, the Secretary; and the Church of the Pilgrims, of which he was one of the organizers in 1843, and continued a member for the remaining forty-five years of his life.

To give the completely rounded character of a departed friend, the writer should describe his faults and weaknesses. This cannot be done here, because, whatever they were, they were not manifest to one who knew him only professionally and in his later life. Certainly, to us, his medical brethren, who met him in the sick-room and at the Society meeting, he was a model physician, a Christian gentleman.

He was thoroughly in sympathy with the New York State Medical Association, which was organized after his health had necessitated retirement from professional work; and he was one of the earliest elected members of this association, although his bodily weakness has never permitted us to enjoy his beneficent presence.

THE BROOKLYN MEDICAL JOURNAL.

EDITORIAL.

SHALL THE SUMMER VACATION BE EXTENDED?

The two hundred and fifty physicians of this city, who signed a petition to the Board of Education to extend the summer vacation of the Public Schools to the second Monday in September, need not be offended because this Honorable Body declined to accede to the request. Some uncomplimentary remarks were made by several members of the Board about the physicians, but the collective wisdom of the Board is not so massive as to make its opposition to the opinions of others of much importance. In this instance however, the Board seems to have acted with common sense and in the public interest. The public school teachers of the city made a dead set on the physicians of their acquaintance, asking for their signatures to a petition that the schools re-open on the second, instead of the first Monday in September. It is much easier to sign one's name than to refuse or argue the case, and as the value of petitions and signatures is pretty well estimated, the teachers might as well have petitioned over their own names, for the case was very properly considered on its merits.

It is very well known, of course, that the seasons have changed within the last two decades and that very warm weather holds till far into September. It is also well known that the educational institutions of all grades, other than the public schools, have been steadily lengthening their summer vacations, by closing in the early days of June and opening closer and closer to the first of October, making a clear-a-way vacation of over three months. It is not in the records of the weather bureau that the summers have become so flagrantly hot as to hold them the efficient cause of this long idleness, when the fathers and mothers of the present race of half-grown boys and girls prospered well in mind and body with their summer vacation limited to the month of August. The cause is to be found partly in the changed social life of the people who patronize the colleges and pay-schools and academies and who support the full season of summer resorts, and partly in the changed curriculum of the schools, wherein so much and so varied study is crammed into the school life of the child. The public schools have felt the pressure of this changed condition of affairs and they are closed during the months of July and August.

It is, perhaps, not strange that the teachers in these schools, who are public servants and paid from the public treasury, should grow restless and feel that their "lot is not a happy one," as they see their fellow-workers, who are under pay of corporations and running private institutions, laying aside their burden two or three weeks earlier in June and putting their necks under the yoke two or three weeks later in September. Sure it is that here is a case in point where the proverbial fattening at the public crib becomes leanness in contrast with the hard exactions on men and women who are trying their luck with fortune in eking out an income from personal enterprise in the selfish competitions of life. And in these mid-summer days, with leisure to exercise and gratify their most capricious fancy, with the assurance of an occupancy in life, comfortably removed from the dangers of starvation and nakedness, an assurance granted to but few, they are nursing a wrath against their taskmasters, whom they once besought for place and money.

The Board of Education, in rejecting the petition, was not dazzled by the brilliancy of the signatures and some of the members took occasion to say so. They regarded them as evidences of careless good nature, as most signatures to petition are, and not as offering a serious presentment. If the signers were in earnest, they could only mean that the petition to lengthen the vacation embodied a needful sanitary measure and the health of the great body of public school teachers was imperilled by the resumption of duty so early in the Fall. Public sentiment has hardly arrived on the plane where it is held that all labor should cease where the conditions are not thoroughly comfortable to the laborers or the wage earners, and the physicians, who signed the petition, have at least common sense. Sentiment is one thing and the necessities of life are another. It is not so long ago when the pedagogue was pretty low down in the social scale. The reaction that set in with the advance of knowledge and the improvement in methods has carried the educator high up on the social ladder, and the teachers have not been behind hand in fostering the sentiment that they are an overworked body, under conditions the most trying and most deserving of sympathy. Teaching may be exhausting work, but the world is full of tired people who must keep on working, or starve, or become objects of charity. And no class of workers begin to have the freedom of many hours and the long stretches of vacation that have become the heritage of teachers. Counting in the long summer vacation, which outrivals that of the most favored of the clergy even, they have a full half of each year entirely at their free disposal and under full pay. The very physicians who signed this petition, save less on the average than do the public school teachers and work on year after year, with rarely a breathing spell and never devoid of anxiety as to their income and their future. The teachers, most of whom received their education from the people, while they are fitted for their work, are no better educated and no better fitted for their special work than the men and women, on the thousand other lines of work, are in their particular vocations. The sentiment that has been the outcome of educational speculators and theorists on advanced methods is almost mawkish. Whatever else the teachers are they are not fools, and if they can get three-quarters of the year in a vacation, by throwing themselves on the public pity, they might be fools if they didn't work this mill for all that it is worth. But the Board of Education is not a sentimental body and if the teachers are not careful to lubricate the sentimental mill with care, the public generally, and masters of incorporated academies also, may tear aside the veil and the next generation may find teachers working like other people, twelve months in the year, with pay docked when on furlough.

Sanitary preachers must be reasonable if they would command respect. The public health would be benefited by a cottage and a half-acre for each day-laborer, but tenement houses are a necessity. The average child, who receives his education from the public treasury, must be dealt with fairly by the Board of Education, but he must go to work early and it is the duty of the Board to give him the steadiest work on the most available subjects while he is permitted to attend school. The common schools are for the mass of the people. It is just possible that if a vote could be had, the majority of the patrons of the public schools would favor a shortening of the vacations, and it is more than just possible that the healthful and educational interests of the public would be promoted if the curriculum of the school work were shortened in and more time and less push given to what was left.

VILLAGE GOSSIP.

The village of Ithaca, N. Y., (beg pardon ; a few weeks since it became a city) has lately had a little sensation, that must have added additional aroma to the cups of tea sipped by the advanced maidens in that classic and lake-side borough, as it rests in sleepy repose, overtopped by the battlements of Cornell's great university. The facts seem to be that during the last sickness of one of her prominent villagers, his homœopathic attendant administered a composing draught which did the other thing than compose for a day or more. The restless energies of advanced maidenhood in the village seem to have animardverted against homoeopathic manipulation of low potency drugs, to such an extent the as to compel this gentleman to lay his grievance with his defence before the public in an open letter, which appeared in the Ithaca *Journal* of June 4th. It would appear that he makes out a clear case in an unvarnished statement of the facts, which ought to plaster over the corked up mouths of the gossipers effectually so far as he is concerned. He states for years a favorite prescription of his has been ten grains each of chloral hydrate and bromide of potash in a dram of simple exilir. This he has again and again prescribed "for the pain and suffering of patients *incurable*, especially for the insomnia which is so often associated with chronic maladies, and has been advised and employed by our ablest authorities." He had given this for many nights to Mr. ——— with good effect, but one night he had the bottle refilled and the druggist, with his own hand, wrote the contents on the label. A teaspoonful out of this bottle brought trouble to the patient and gladness to the gossipers. No harm came to the patient but the tongue of scandal kept wagging. The Doctor properly insists that the guarantee of the prescription being compounded correctly was "the label on the bottle in the handwriting of the druggist who compounded it" and finally asserts with correctness that, "if the physician has no protection, then the whole business of putting up prescriptions by druggists would soon come to an end." So far as we know the druggist has put in neither rejoinder, nor defence, nor explanation.

We have no fault to find with the prescription or the wisdom of its application. This homœopath evidently is in line with so many of his brethren who have caught the cry of the waiter in the cheap restaurant for dumpling sauce and practice, "both kinds with plenty of hard on." There is nothing novel about this feeler for employment, but there is something refreshing, as a refrigerator in summer, in his reference to "our ablest authorities." Herr Hahnemann will have to employ Miss De Bar, the princess of spookdom, to pass him up a dose of the new prescription for trial. When the druggists statement appears, comment may be in order. Something or other seems to have gone astray in this rural pharmacy.

PROGRESS IN MEDICINE.

OPHTHALMOLOGY.

BY RICHMOND LENNOX, M.D.,

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ON TRANSPLANTATION OF THE CORNEA.

In consideration of the publicity given to an operation of this kind, recently performed in Philadelphia, a paper on the subject (Graefe, Arch. f. Ophthal., xxxiv, 1,) by von Hippel, the originator of the method followed, may not be without interest. Von Hippel has already called the attention of the profession to his method at the last meeting of the Heidelberg Ophthal. Society, but without going carefully into details, as it was his intention to wait until a larger experience had made him more familiar with each step of the operation, its indications, dangers, etc. His reasons for not waiting longer before publication of his experience in all its details are twofold: first, the knowledge that the clinical material at his command will not yield a sufficient number of suitable cases within a reasonable time, and secondly, the desire to give those who wish to perform the operation the benefit of what his failures and successes can teach. After a short review of the more recent literature on the subject, and a consideration of what he calls favorable cases, von Hippel describes his method of operating. Briefly, the steps of the operation are these: With a special trephine, the cutting edge of which is made to revolve very rapidly by clockwork, and which can be adjusted so as to penetrate only to a certain depth previously determined, he makes a circular incision in the leucomatous cornea, the lids being separated by an elevator and the cocainized eye held steady by two fixation forceps. The incision is carried to a depth of about .75 mm., leaving the posterior lamellæ of the cornea with Descemet's membrane intact. The next step is the removal of the circular piece of cornea included by the section, leaving as little of the posterior part of the cornea as possible. Von Hippel himself says that he believes it impossible to remove all but Descemet's membrane. The removal of this piece can best be made with a Graefe cataract knife, its edge being seized and raised somewhat with a straight rather stiff pair of toothed iris forceps. This is by far the most delicate part of the operation, and it is necessary for an assistant to wipe away between each stroke of the knife the blood which would otherwise cover the wound and interfere with the surgeon's view of what he is doing. Should, after the removal of this piece of cornea, the posterior layers appear opaque, it will not necessarily prejudice the success of the operation, as in favorable cases such opacities may clear to a very satisfactory extent. This part of the operation over, the eye is gently washed with lukewarm sublimate solution (1-5000), and moderate compression employed through the closed lids to stop any possible bleeding. Then with the same trephine the operator removes a circular piece from the cornea of a (preferably) young rabbit in its entire thickness. Great care must be taken not to damage the endothelial covering of its inner surface, or to compress its edges in any way. This clear piece of rabbit cornea is then placed in the socket made for it in the leucomatous eye. This is done with a rubber spatula, the piece being laid upon the surface of the cornea near the wound, and then slid into position, so as to avoid the retention of any air bubbles in the wound. Iodoform is dusted over the cornea, the lids closed gently, and both eyes kept quiet for two to three days with a firm compressive bandage. After this the dressing is renewed daily, and on the sixth day the non-operated eye may be left free and the patient allowed to leave his bed. The operated eye may be left open after the eighth to tenth day, provided there be no injection.

The accidents during the operation are chiefly these: Perforation and loss of aqueous during the use of the trephine, necessitating that the wound be allowed to heal before any further attempt at transplantation is made. A perforation made while excising at the proper depth the leucomatous piece of cornea, if small, need not of necessity compel one to desist from the operation. Should too little of the cornea be removed, it is sometimes better to allow the wound to heal, and try again, rather than run the chances of perforation by the attempted removal of additional corneal lamellæ. The removal of more of the cornea at the centre than at the periphery, the resulting wound being somewhat funnel shaped, is highly unfavorable. Sometimes the intraocular pressure will cause the floor of the wound to bulge forward, rendering the introduction and retention of the transplanted piece very difficult. This may be relieved by puncture of the anterior chamber, the small corneal wound rapidly healing.

Von Hippel has operated in eight cases, four of which were successful. In three of the unsuccessful cases the result was due to a failure in the technique on the part of the operator. The fourth failure was caused by the unruly conduct of the patient after the operation.

The healing process is accompanied by a certain amount of increased vascularity of the leucoma and perhaps some slight dimness of the transplanted piece, which, however, disappears in the course of a few days. By the operation the vision was raised in three weeks from counting fingers at two metres to V. $= \frac{20}{200} +$, but judging by his experience, von Hippel believes that this "ideal" course can only occur when the leucoma does not extend through the entire thickness of the cornea,—when, in other words, the posterior layers of the cornea are clear. When this is not the case, the course of healing is much slower, and it may be several weeks or even months before the benefit of the operation is apparent.

Should the edges of the wound be other than vertical, or the wound itself be too shallow, one is only too apt to find the swollen and opaque transplanted piece loose in the conjunctival sac at the first dressing. The wound, however, fills up with new tissue, which in von Hippel's experience is much more transparent than the previous leucoma.

The conclusions which von Hippel draws from his results are the following:

1st. The practicability of corneal transplantation according to his method, with permanent transparency of the transplanted piece and attainment of a sufficient visual power, is irrefutably proved.

2d. The transplantation can be undertaken with a prospect of success even when the leucoma involves the entire thickness of the cornea.

3d. Unsuitable for operation are the total adherent and the staphylomatous leucomata.

4th. The operation is in no respect dangerous, and is attended with very slight discomfort to the patient; it can thus be undertaken in all cases in which there is even only a moderate probability of success.

In the same number of the Archives is also a paper by Wagenmann, giving the results of a number of experiments on rabbits in reference to the possibility and pathology of total transplantation, Von Hippel, as we have seen, favors the partial operation, i. e., that in which the entire thickness of the cornea is not cut through. Certainly the total operation is a more ideal one, but the opening of the anterior chamber and the consequent contact of the aqueous humor with the substance of the transplanted cornea, are as certainly unavoidable evils, which entail all sorts of disastrous consequences. Nevertheless Wagenmann has succeeded with the total operation in the rabbit,—at least he has cut out almost the entire cornea and sutured it again in position, and in spite of this the wound has healed and the centre of the flap remained transparent enough to allow a "perfectly sharp and distinct" view of the fundus. Whether this would be possible, were the inserted piece to be taken from another eye, and whether again similar results would follow similar methods in the human eye, is a question as yet undecided. Certainly in every attempt at total transplantation up to the present, the flap in the human eye has lost its transparency, even when it has retained its position. Wagenmann found that the edges of the flap become opaque in every case, and that it is only by making it of large size that the centre will remain clear.

MARKED HEREDITY IN JUVENILE CATARACT.

Berry (Oph. Review, Jan., 1888,) reports on a curious instance of marked heredity in juvenile cataract. Struck by the similarity of two cases of this kind of cataract, where the patients were cousins, he was induced to make inquiry into their family history, with the following result: He was able to go back about six generations with a completeness that quite warrants the publication of the result.

Out of fifty-five individuals, belonging to five generations, whose existence could be traced, twenty had cataract.

		With Cataract.	Per cent.
Males	28	8	28.6
Females	27	12	44.4
	55	20	

The hereditary tendency is thus more strongly marked in the females, and in no instance has the eldest female child escaped. The cataracts as a rule began in early childhood, and were progressive. There is no record as to whether one or both eyes were affected, except in one case in which the cataract was double. No other disease appears to have been transmitted with the cataract. There was but one intermarriage in the family—that of first cousins in the first of the five generations included in the report. But that the cataractous tendency already existed is shown by the fact that one of these marrying cousins had two brothers and two sisters with cataract.

EXTRACTION OF IMMATURE CATARACTS.

McKeown (British Med. Jour., Jan. 28, 1888,) reports on one hundred consecutive cases of cataract, on which he has operated with what he claims is a success equal to the average. The peculiarity of this series is that he has not hesitated to operate on immature cataracts, some being even so slightly advanced as to admit of an examination of the fundus with the ophthalmoscope, and a visual power equal to counting fingers at from two to fifteen feet. The difficulty with such cataracts lies in thoroughly removing the cortical matter of the lens, which by its subsequent swelling may cause inflammation, secondary glaucoma, or, if nothing worse, a secondary cataract requiring further operation. McKeown's method is to wash out the anterior chamber, after the removal of as much of the cataract as will escape with the nucleus, either with warm distilled water, which has been previously boiled, or with some antiseptic solution injected with a specially constructed syringe. In not a single case out of twenty in which water was used could he see any evidence of intra-ocular inoculation. He claims that the force necessary to remove the sticky cortex is not dangerous, but adds that "Experience teaches the surgeon what he can safely do." As to iridectomy, M. is of the opinion that it is to be omitted in cases of "mature or nearly mature" cataract, but performed when the cataract is very immature. It is difficult to compare his results with those of others, as there are no analogous statistics, and as his visual records after operation are confined to the patient's ability to read small type at short distances with strong glasses.

HYDROCHLORATE OF ERYTHROPHLEINE: THE NEW LOCAL ANÆSTHETIC.

At a meeting of the Berlin Medical Society, held on January 11, 1888, L. Lewin called the attention of the medical profession to the local anæsthetic properties of the erythrophlæum guineense, or judiciale. Two weeks later, at a succeeding meeting of the society, he reported on further experiments with the drug, and this was the signal for a number of other observers, who were able to procure samples, to report their observations. A consideration of these results leads one to the following conclusions as to its action.

It is a decided local irritant and anæsthetic, either when applied to mucous membranes or when used hypodermically, acting when absorbed as a profound systemic poison somewhat resembling digitalis. Both in its irritant and its anæsthetic action, it is far more powerful than cocaine, a few drops of a two-tenths per cent. solution being quite as much as one can use with safety in the human eye. A .05 per cent. solution, dropped into the conjunctival sac, will produce a diminished sensibility, apparently limited to the part with which it comes in contact, in from two to three minutes, profound anæsthesia not however being obtained until fifteen to twenty minutes or even more have elapsed. Once established, the anæsthesia lasts eight to ten hours or more, in some cases even twenty-four to forty-eight hours. Erythrophleine causes marked irritation with burning pain, lachrymation and conjunctival congestion for some time after its instillation, even in healthy eyes, and when used in cases of ulceration, as of the cornea, the pain is enormous. This can, however, be controlled more or less completely by the use of cocaine.

One of its later effects is a cloudiness of the corneal surface with consequent impairment of vision, and the appearance of rainbows around lamp flames, a condition similar to that seen in early glaucoma. This cloudiness seems to be due to a lack of transparency in the corneal epithelium, brought about in all probability either by the direct action of the drug upon the cells, or by an altered nutrition from impaired nerve action. This latter would seem the more probable cause, when one considers that several hours at least usually elapse after the instillation of the drug before the cornea becomes cloudy. Certain observers have noticed a cloudiness of the corneal tissue proper.

Erythrophleine seems to have no effect upon the iris, either in diminishing its sensibility or upon its muscular apparatus, except perhaps to produce a slight contraction of the pupil. The power of accommodation is unaffected, as is the vision until the cloudiness of the corneal epithelium occurs. Used hypodermically, as in the eyelid, two to three drops will produce complete insensibility of the lid, the sensibility of the globe remaining unaffected. Its toxic power must, however, not be lost sight of in its hypodermic use. One important thing seems to have received no attention as yet from observers, i. e., its effect upon the intra-ocular tension. Alt alone alludes to it (Amer. Jour. of Ophthal., Feb., 1888,) and he only says: "The seeing of rainbow colors would, it seems, indicate a positive influence of the drug on the intra-ocular pressure, which should guard us from using it in eyes with a glaucomatous tendency."

From the results of experiments thus far, the feeling seems to be that the use of erythrophleine in ophthalmology will be very limited, as it is inferior to cocaine in every respect, since even the prolonged anæsthesia must be regarded as disadvantageous after such an operation as a cataract extraction.

ON PHOTOGRAPHING THE EYE.

Although many have made repeated attempts to reproduce the appearances of disease in the eye by photography, the results have not been very encouraging. The difficulties have been so great that it has been impossible up to the present to truthfully photograph even the iris and the pupil. The chief of these difficulties has been perhaps the insufficient illumination, and it is in this respect that the magnesium flash light, so lately introduced, has proved its efficacy.

Cohn has made experiments with this light with most encouraging results (Centralblatt f. prac. Augenheilkunde, March, 1888). He has been able to satisfactorily photograph a pupillary membrane, a coloboma of the iris, and even the painted optic nerve of an artificial eye, as seen by the indirect method with the ophthalmoscope; and his conclusions are that, with an apparatus of sufficient precision, the possibility of photographing the living optic nerve does not admit of a doubt. His method is to mix equal parts of magnesium and finely powdered chlorate of potash with the dry finger on a piece of paper, and for each exposure to use about as much powder as can be taken between finger and thumb. He puts this on a little tin dish, having a diameter of about 15 mm. and sides about 5 m. high, and lights it with a small piece of punk stuck in the end of a stick somewhat less than a foot long. This small quantity gives quite enough light at a distance of 20–30 inches for all eye portraits, and causes neither troublesome smoke nor glare. It is so quick that the pupil does not contract till after the flash, and thus the natural size of the pupil in the dark is obtained. This is found to be very large, appearing almost as though a mydriatic had been used.

Certainly this method is a great advance, and, with the improvement which will be made in the technique, we may hope to have in this a simple and reliable means of representing diseased conditions of the anterior part of the eye—perhaps even of the fundus.

DISEASES OF CHILDREN.

BY JEROME WALKER, M.D.

Mortality of Scarlet Fever at different Periods of Life.—Dr. Tatham, medical officer of Salford, England, gives, in the British Medical Journal, the following interesting statement. Of the 2,500 cases of scarlatina that had come under his care, 259 occurred within the first two years of life; 26 per cent. of these died. Of the 881 cases occurring between two and five years, 14 per cent. died. Of the cases that occurred between five and ten years of life, 7.5 per cent. died. The mortality among all cases above ten years was 3.5 per cent.

Dr. Line (Birmingham Medical Review, March, 1887) reports that in 1,000 cases coming under his observation, the mortality under five years of age was 10.5 per cent. From six to sixteen it was only 1.99 per cent. The greatest mortality was between two and four years. The reports indicate that the risk of death from scarlet fever is greater the nearer the patient is to one or two years of age. The risk diminishes beyond the fifth year of life. Children under one year are not, as a rule, susceptible to the disease.

While the statistics furnished by Drs. Tatham and Line do not settle the matter, they protest against the practice of some physicians who, when scarlet fever or other contagious disease appears in a house, recommend that no special precautions be taken as to the younger children. They say that, "as one attack of a contagious disease probably gives to the recipient, for many years at least, immunity from that disease, and that, as children are destined to have the so-called children's diseases sometime or ther, the sooner the better." On the contrary, at the present time, when the majority of young children are artificially fed, and young mothers are mainly of the nervous type, the struggle that is necessary for even a fair physical development is enough to contend with, without the little ones being subjected to the strains which most contagious diseases inflict.

Whatever may have been the rule in times gone by, in the present age immunity from a second attack of contagious disease is not by any means always to be expected; at least this is our experience. If we consider also the debility, prostration, and injury induced by contagious diseases, especially among feeble children, and the increased risk of death, the position of the physicians before referred to does not seem a sound one.

Enemata of Water in the Treatment of Diarrhœa and Dysentery.—Raymond Tripier (Jour. des Sci. Méd de Lille, April, 1887) reports the use of hot water as enemata with an infant twenty-one months old, whose dysenteric movements were every fifteen or twenty minutes. After the first injection there was no movement for two hours, and in a short time the child was convalescent. The temperature of the water should be 45–48° C., and from 300 to 500 centimetres in quantity. If enemata alone do not answer, decoction of ipecac is given internally.

Injections of *ice-water* are said to be used at the Birmingham General Hospital with marked success in severe forms of diarrhœa in children, two or three fluid ounces being injected each time. The immediate effect, even when there are symptoms of collapse, is quiet sleep, and diarrhœa is in general easily controlled by a few injections. Medicine by the mouth is also given. Dysentery is not readily controlled by medication, especially with patients living in overcrowded houses, and enemata of hot water seem reasonable.

Enemata of cold water (not iced) have been of great service in the non-inflammatory forms of diarrhœa, especially when nervous and muscular tone are much depressed. An easily worked bulb-syringe is best adapted for these enemas, which should be given either after each movement (if the movements are frequent), or every two hours, until there are but three or four movements per day. An opiate (preferably the deodorized tincture) may be given in the enema, if there is great restlessness or much tendency to strain. Internal medication, if possible, had better be dispensed with. Frequently one injection of cold water, together with regulation of the diet, will cure a comparatively mild case of diarrhœa.

Treatment of Summer Diarrhœa by Antiseptics.—Dr. Wm. F. Waugh (Philadelphia Medical Times, August, 1887) states that he has treated thirty cases of summer diarrhœa with the sulpho-carbolate of zinc without one death. The cases included inflammatory entero-colitis and true cholera infantum, as well as milder forms. The salt was given in doses of one-sixteenth of a grain every two hours, with one to five grains of bismuth; and, if well borne, the dose was increased to one-fourth of a grain for a child in its second summer. The Doctor claims that the zinc salt is superior to naphthalin and salicylic acid, in that it is more palatable and less irritating to the stomach. Its effect is to stop vomiting and to render stools less offensive, but it sometimes makes them more copious. When the last effect occurs, he substitutes an enemata of flaxseed tea containing five grains of the zinc salt and a half drachm of bismuth. Fever was treated by antipyrin in doses of one or two grains.

Within the last few years the antiseptic treatment of summer diarrhœa has made an advance, a prevailing opinion being that micro-organisms in food and air have much to do with the causation of the affection. Antisepsis, allaying nervous irritability by pure air and quiet surroundings and minute doses of opiates or bromides, relieving irritation by regulation of diet, small doses of carbolic acid, opiates, ipecac, cocaine or calomel, and by enemata of water, seem to be preferable to the use of astringents. As antiseptics, Dr. Holt has used to advantage, at the Infants' Hospital at Mt. Vernon, salicylate of soda, resorcin, naphthalin, and the bichloride of mercury. Dr. Sarah J. McNutt (Post-Graduate Journal, July, 1887) is favorably disposed to the use of the bichloride.

Treatment of Croup.—Dr. W. S. Cline, Tomsbrook, Va. (Medical World, May, 1888) claims that within twenty-four years he has seen hundreds of cases of croup, and does not remember of ever having lost a case. He gives a small teaspoonful of a mixture of equal parts of alum and sugar. This is given every twenty minutes till breathing is easier, then follows with a purge of calomel. If relief does not occur in one or two hours, he uses turpeth mineral. He claims that he has never had to make a second visit to a case of croup. This statement seems to be sufficiently remarkable without the inquiry as to whether any of the cases so promptly relieved could have been cases of true croup. While it is true that many cases of spasmodic croup recover very promptly, even in a few hours, there is reason to believe that some cases, especially in feeble children of a nervous type, have a tendency to last several days, to the great discomfort of the child and the worriment of the parents. Might not some such cases have been considered cases of true croup? The doctor's mode of treatment which has been quite widely copied by medical journals, needs to be verified. In Brooklyn, what has come to be known as Dr. Burge's treatment for croup is liked by many practitioners.

Differential Diagnosis of Pneumonia.—Dr. David Phillips (New York Medical Journal, April 21st, 1888) states that pneumonia may be diagnosticated from a severe bronchitis by means of the expiratory moan and the physical signs; but if both be absent, then by comparison of the pulse with the respiration. In health they stand about 4 to 1. In pleurisy and bronchitis, rarely more than 3 to 1; while in pneumonia, frequently from 2 to 2½ to 1. Henoch says that 40 to 50 respirations a minute in young children indicate inflammation in the large and medium sized tubes, while a greater number a minute indicate inflammation in the smaller tubes.

"Incubator" and Gavage.—Dr. Hirst (Report of Meeting of Obstetrical Society, Philadelphia, February 2d, 1888—Annals of Gynæcology, March, 1888) exhibited the "incubator" in use at the Maternity Hospital. It is a simplified Crede's incubator, a double walled bath tub of copper. Hot water is poured into the space between the walls, and the temperature is maintained within the tub of nearly 100° F. The Doctor explained the "system of Gavage" in use in the same institution. It consists in forcing into the child's stomach about 10½ drachms of human milk every hour, through a soft rubber catheter by means of a syringe. He believes a syringe to be better than the glass funnel advocated byFarnier. Reports one case of a premature infant born at 216th day, weighing at birth 1,080 grammes. After a month's trial of Gavage system it weighed 1,460 grammes. The rearing of undeveloped or atrophied babies is so difficult, even with the best care, that any method that will add to the chances of prolonging life is welcome. Feeding by the rectum is unsatisfactory, as it cannot be continued for a length of time. As Prof. Jacobi says (Archives of Pediatrics, February, 1888), "The rectum absorbs, but it does not digest. * * * Whatever we do, be the rectum ever so tolerant, not more than one-fourth part of the food required for sustaining life can be obtained by rectal injections, and inanition will follow, though it be greatly delayed. Children are not so favorably situated in regard to nutritious enemata as adults. In these the lengthening of the nozzle of the syringe by means of an elastic catheter permits of the introduction of a

large quantity of liquid; indeed, a pint can be injected and will be retained. But the great normal length of the sigmoid flexure in the infant and child, which results in its being bent upon itself, prevents the introduction of an instrument to a considerable height. It will bend upon itself, besides a large amount of contents will be expelled by the feeble or resisting patient."

Nursing Bottles.—(Report of the Committee on Hygiene of the Medical Society of the State of New York— The Sanitarian, February, 1888.) The committee says that, in spite of the fact that nursing-bottles with long rubber tubes, and glass reaching to the bottom of the bottles, have been condemned in all text-books as dangerous, they are publicly sold in the shops and are largely used among the poorer classes. Commonly the brushes that are supposed to be sold with them are seldom used. The committee recommends that "the attention of the Society at its coming meeting be called to this matter, in order that some steps may be taken to secure appropriate legislation on the subject." This action is suggested, as it is the belief of the committee that such nursing-bottles are injurious to the public health, being largely responsible for the great mortality which occurs among children, especially in the tenement-house districts. It may reasonably be questioned whether, although the tubed bottles may well be called "snake bottles," they can be banished, for physicians do meet with children who thrive upon food administered through them. The fact is, that the danger from their use comes from the carelessness of the child's guardian rather than from the bottle itself; but bottles without corners and tubes are to be preferred. Valved bottles are liable to get out of order. Pap-cups, if carefully used, are excellent. Prof. Starr (Med. and Surg. Jour., December 3d, 1887) has suggested a new bottle, called the graduated nursing-bottle, made of transparent flint glass, so that the slightest foulness may be seen. The interior surface is free from angles, and an accurately graduated scale of fluid ounces and half ounces, or tablespoonfuls, is blown in the glass. It is said to be convenient, accurate in measurement, and easily cleansed.

Sterilized Milk.—Dr. Augustus Caille, in a paper read before the Pædiatric Section of the New York Academy of Medicine (The Dietetic Gazette, April, 1888), after describing the apparatus designed and used by Soxhlet, by which milk sterilized will keep sweet four to six weeks, gives the result of some experiments made by himself with Soxhlet's apparatus, milk remaining good eighteen days; milk boiled in small bottles for fifteen minutes, and these well corked before removal from the water, the milk remaining good for five days; milk boiled in a pot and put into small bottles after cooling, souring after four days; milk boiled in a pot, and left standing in an open dish in a room with a temperature of 75° F., soured in from eight to fifteen hours; and milk boiled in a pot, and placed in the ice-box in an open dish, turned in from eighteen to twenty-six hours. He concludes that milk can be sterilized in any well-regulated household; that boiling milk for twenty or thirty minutes in small hermetically sealed bottles is sufficient to destroy the germs of fermentation; that the ordinary method of boiling milk for infants' food is faulty. The essential utensils are, small bottles (5 to 6 oz.) with Soxhlet's combination stoppers, and a tin or galvanized iron tray. This enlargement of the plan proposed by Dr. Jacobi years ago, is another step towards the use of cow's milk for artificial feeding, instead of patented baby-foods. If milk can be made to keep sweet for a number of days by boiling, and if the caseous matter can be rendered more digestible by peptonizing, the objections to milk will be largely done away with, and the cost of raising an artificially fed baby will be lessened.

The Use of Kephir as an Infant Food.—Dr. H. Longstreet Taylor (Archives of Pædiatrics, May, 1888), after observing the use of kephir at Prof. Freund's gynæcological and obstetrical clinic in Strassburg, and finding peptonized milk and malted foods unsatisfactory, tried kephir, during his five months of service at the Home for the Friendless and Foundlings, among the atrophied children. He claims not to have had a single death from marasmus, but he does not relate how many cases he had under his care. He says that the kephir fermentation breaks up the caseine into flocculent particles, changes the albumen into peptones, and the sugar of milk into lactic acid, alcohol, and carbonic acid gas. A few children refused to take the food. To those who would, from four to six quarts were taken daily. The first effect was a diarrhœa, which emptied the bowels of partly digested material. This was followed in a few days by normal stools. The skin became less harsh and the abdomen less prominent, appetite improved, and kidneys were more active. Increase in weight was slow. When the body filled out, kephir was stopped and other food given. It should not be used if over a week old, and, to infants over a month, should be diluted one-third; in older children, less dilution. In children over a year old, other food may be given in addition. Any physician who has had experience in a foundling asylum or nursery knows how difficult it is to obtain good results with the puny, atrophied infants that are sure to come under his care. If kephir is superior to koumiss, as is claimed, and will answer when peptonized or malted foods will not, it will be a valuable aid to recovery.

REVIEWS.

THE PHYSICIAN'S BEDSIDE RECORD. Published by the Plimpton M'f'g Co., Hartford, Conn. Price, 50 cents per dozen.

There is nothing more helpful to a physician in the protracted treatment of a case of sickness than an accurate record of what occurs in his patient's history from day to day. Like other physicians, we have often wished that some printed form might be supplied to meet this want. The Physician's Bedside Record seems to be the very thing so long wished for. Its low price makes it practicable to use it in every case where such a record is a desideratum. It was designed by a physician for use in his own practice for the purpose of keeping a permanent record of the clinical features of disease, recorded at the patient's bedside. It comprises a page for the preliminary history of the case; twenty-eight pages, for the recording of as many days' observations, ruled one line for each hour of the day, with spaces for pulse, temperature, respiration, medicine, notes of nurse, and directions and notes of physician; following these are three closely ruled pages for the physician's notes or history of the case; and, concluding, there is a chart for a tracing of the pulse, temperature and respiration, showing at a glance the variation for each day of the disease. The size of this little book is 3¼ x 6¼ inches. It is bound in a manilla cover, which is printed with spaces for the Case No., Date, Disease and Name, to facilitate its filing for future reference.

ON CYSTOSCOPY, AND THE NEW CYSTOSCOPE OF NITZE AND LEITER. WITH A DEMONSTRATION OF THE SAME.*

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Reprinted from the New York Medical Journal for April 21, 1888.

Mr. Chairman and Gentlemen: The two new cystoscopes of Dr. Max Nitze and Mr. Josef Leiter are the improved forms of an instrument known to the medical world since the year 1879. It was formerly called the Bruck-Nitze-Leiter or Nitze-Leiter cystoscope.

Bruck, a German Dentist of Breslau, Silesia, was the first who, in 1857, used platinum wire heated to whiteness for illumination of parts of the body. He tried to accomplish this by making use of the diaphanic qualities of the tissues. To examine the bladder he introduced a strong light, the white-hot platinum wire, into the rectum and a tube *per urethram* into the bladder. Through the latter tube he then inspected the bladder and its adjacent parts. Twenty years latter Dr. Max Nitze proposed to introduce the white-hot platinum wire directly into the cavity or canal to be examined. He designed and constructed various instruments with which he intended to inspect more closely the urethra, bladder, stomach, etc., the two latter organs through a telescope situated in a central cavity forming the axis of the instrument.

But these instruments are very defective yet. They were improved and made available for general use by the patience and perseverance of Leiter, a well-known instrument-maker of Vienna, after many months of expensive and troublesome experiments. On the 9th of May, 1879, the cysto-urethroscope was presented to the Society of Physicians of Vienna by Dr. Nitze.†

There is no doubt that Dr. Nitze is the inventor of the urethro-cystoscope, and that the medical profession is indebted to him for his continuous efforts, extending over more than twelve years, to improve instruments. But at the same time we must appreciate the ingenious work of Mr. Leiter. He also deserves that his name be for ever connected with these electric endoscopes.

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* Read before the Section in Surgery of the New York Academy of Medicine, April 9th, 1888.

† "Weiner med. Wochenschrift," 1879, No. 24, and "Wiener med. Presse," 1879, No. 26.

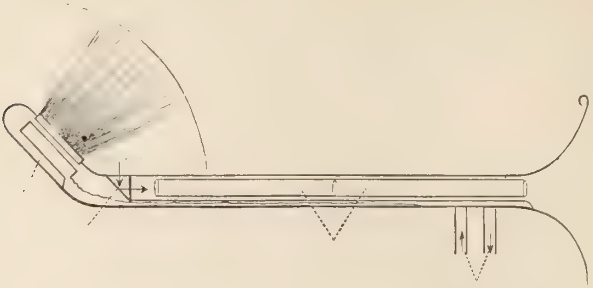

Fig. 1.*

The cystoscope (Fig. 1), then, consists of a silver tube of the shape of a catheter, in the short beak of which a platinum wire is fastened. The latter is made incandescent by means of an electric current which passes through it, and then darts its rays upon the wall of the bladder through an oval window in the concavity of the beak, covered with transparent quartz. To convey the current of electricity to the platinum an insulated wire runs through the whole length of the shank; the metal of the tube forms the connection with the opposite pole. The platinum wire is surrounded by a combination of pipes through which a current of cold water runs, to keep the heated instrument perfectly cool. They measure only one millimetre and a half in diameter and pass through the whole length of the sound, entering at its collar. According to Nitze's design, a telescope is introduced into the shank of the cystoscope, as above mentioned. It enlarges and magnifies the spot coming into sight. Without this telescope we should not see much more at the time than a spot of about the size of a pea; with it we are enabled to inspect a portion as large as a silver dollar, and even more.

At the junction of beak and shank corresponding to the concave side a regular prism is cemented in, the hypotenuse-plane of which acts in a mirror on account of the total reflection of the rays. Thus a diminished, inverted real picture arises in the shank of that wall of the bladder which is situated at a right angle to the longitudinal axis of the instrument and opposite the prism. It is again inverted by means of the lenses of the telescope and thrown to the outer end of it, where the examining person looks at the now upright picture through the magnifying ocular of the telescope. At the middle of the upper circumference of the funnel-shaped handle a small knob is soldered. It enables us to be permanently informed to which side the beak points.

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*Instead of the wire loop at the end of the instrument there should be a straight wire.

If the fundus of the bladder is to be inspected with this instrument it must be turned 180° and its handle deeply depressed between the thighs of the patient, the latter being in the recumbent (lithotomy) position, the best for examination with the cystoscope. This manipulation may sometimes be very painful. To avoid this, a second instrument (Fig. 2) is made with the window for the incandescent platinum on the convex side of the beak. There is another window at the end of the straight tube through which the observer looks with the telescope. Of course there is no prism.

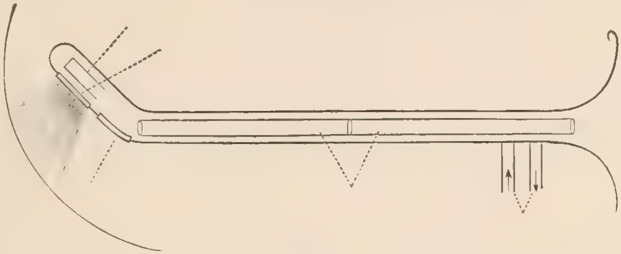

FIG. 2.

In using the original cystoscope there were needed, besides a Bunsen's battery with a special fluid, a rheostat, to give the current with the greatest subtileness of the necessary strength in each case, and a reservoir containing about two or three gallons of cold water. These accessory apparatuses complicated the instrument very much and made it very expensive, in consequence of which cystoscope was very rarely resorted to. The new instrument was only bought by some larger clinical institutions and hospitals and used by a few specialists and surgeons who take interest in investigation of diseases of the bladder, such as Nitze, v. Dittel, Nicoladoni, Ultzmann, Sir Henry Thompson, and the late Dr. Maas, professor of surgery in the university of Würzberg, Bavaria. They all unanimously and repeatedly praised the excellent results of inspecting the bladder.

The enormous advance in electro-technique made in the last few years also improved the cystoscope. Edison's lamps of a very small calibre, so-called mignon-làmps, well known to you all, took the place of the platinum wire and did away with the many accessory apparatuses, especially with the water-pipes. The new cystoscope is very handy and not expensive.

That the two men who invented and constructed the original instrument are at variance in regard to the priority of the improvements may be immaterial to us. We derive from the controversy—that even found its way into Dr. Nitze's newest and lucid essay, "Beiträge zur Endoskopie der mannlichen Harnblase"*—two cystoscopes, made in accordance with the same principle and varying only in some trifles. It seems that both are equally good and useful and of the same price ($18 without duty). Leiter's cystoscope shows the old pattern with the improvements mentioned. A key near the handle can be made to

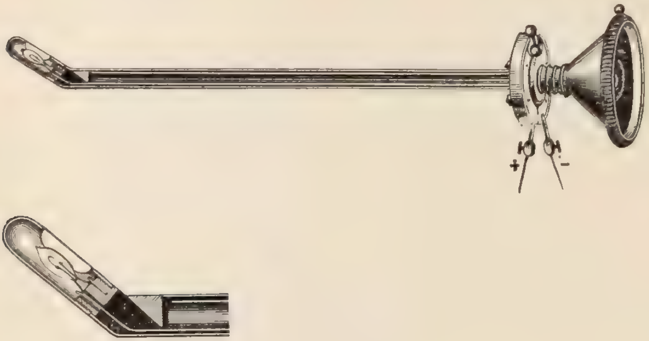

FIG. 3.

break or make the current by turning it to the right or left upon or from an ivory plate. The shank of the instrument is somewhat short; its telescope diminishes the part in view a trifle. Why it does not show it in its normal size I do not know. Nitze puts the mignon-lamp into the end of the beak and does not protect it with transparent quartz. He says that it is not necessary, and he is thus enabled to use lamps of a larger size and therefore a brighter light. His telescope

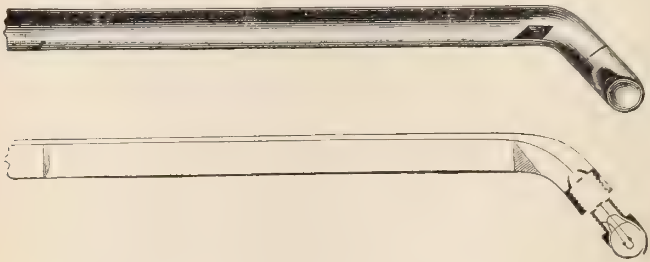

FIG. 4.

magnifies. The shank is an inch longer than that of Leiter's instrument, the beak a trifle shorter. (The wires of the battery are connected with the so-called "tongs" that are attached to two isolated metal rings at the collar of the instrument. A slide makes and breaks the current.) Nitze constructed two more cystoscopes for the thorough and easy inspection of the fundus of the bladder and of the internal orifice of the urethra with the surrounding portions of the bladder, and especially of a part of the prostate. In these the prism is situated in the beak of the sound close to the mignon-lamp. In the first (the cystoscope for the fundus), the lamp and prism face the convex side of the beak; in the second (for the internal orifice of the urethra), the concave side. The picture arising, after having passed a system of two strong convex lenses in the beak, is reflected from a mirror fastened at the curvature of the instrument. Another lens in the middle of the shank throws the picture to the outer end, where the examining person again looks at it through the magnifying ocular. Both certainly are very important instruments.

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* Langenbeck's "Archiv. f. klinische Chirurgie," vol. xxxvi, 3, p. 661.

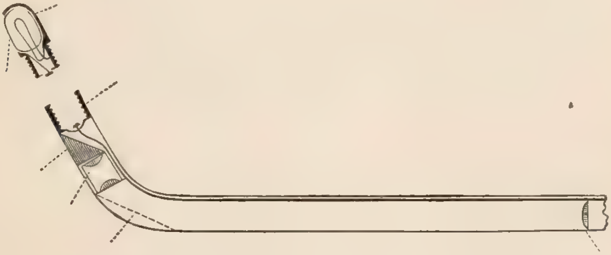

FIG. 5.

On account of the differences named, Nitze alleges superiority for his cystoscope. Nevertheless, I first sent for Leiter's, because he

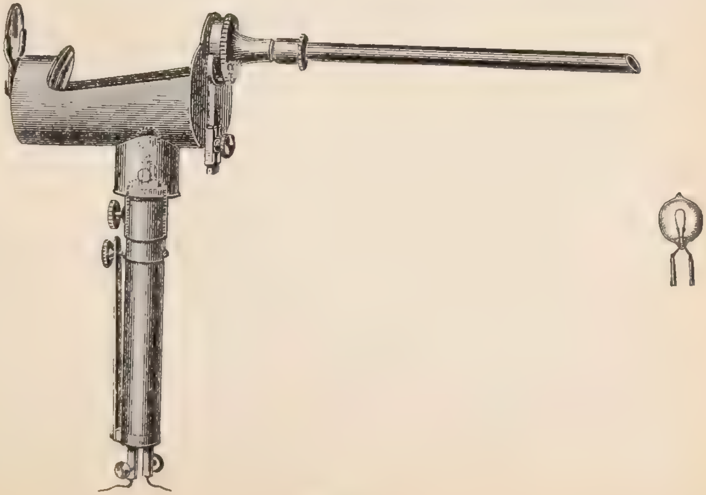

FIG. 6.

makes use of the mignon-lamps also for urethroscopy in a very practical manner. To be sure, a kerosene-lamp with one or a few burners or a gas-lamp gives sufficient light to illuminate the urethra by means of a head-mirror through Grünfeld's or Klotz's urethral endoscopes; but it is undoubtedly an advantage to have an even brighter light in a handle that is easily attached to the endoscope after it has been introduced, and can readily follow the motions of the patient. It also seems that it is just as handy as the former patterns after some practice.

On account of the possibility of using the same electroscope, only with different head-pieces, for rhinoscopy, laryngoscopy, œsophagoscopy, otoscopy, etc., v. Dittel called it "pan-electroscope." I shall also demonstrate it hereafter. A thorough description of these instruments—also of the new gastroscope, which illuminates portions of the wall of the stomach as large as the palm of the hand—can be found in J. Leiter's separate edition of his catalogue of surgical instruments. Vienna, 1887.

For the generation of the electric current I ordered the battery designed by Leiter, too. Nevertheless, any electric battery used for galvano-caustic purposes will light the bow of carbonized vegetable fibre. But with Leiter's battery we are able to regulate the strength of the current with great ease by millimetres. He slowly dips the elements into the fluid of pure chromic acid, and water by means of a screw and winch, thus taking care to reach exactly the strength of the current that is needed to light the bow sufficiently without destroying it. Should this happen, however, the mignon-lamp is very easily replaced by a new one. I have been using the same and first lamp for the last ten weeks. It is worth mentioning that the six small elements can be converted without trouble into one very powerful, and then be used for galvano-caustic purposes. P. Hartwig, an instrument-maker of Berlin, who makes Nitze's cystoscope, sells an electric battery constructed exactly after the same principle.

I received Nitze's cystoscope and the battery only this afternoon, and so cannot say much more about the battery at present. But, according to information I got from Dr. Nitze a few days ago, it seems to work well likewise.

In using the cystoscope we put its beak into a glass or bowl under water (the above-mentioned key touching the metal of course), and then slowly turn the winch until the lamp gives a constant and bright light. Then we break the current by bringing the key in contact with the ivory plate, dip the instrument into glycerine (vaseline would dim the window and prism), and introduce it into the bladder. This manipulation is just as easily performed as the introduction of a simple catheter. Before we apply the instrument, the bladder must be washed, provided the urine is bloody or clouded with mucus, and then be partially distended with from five to six ounces of clear water. If the urine is quite clear, no preliminary washing is necessary. The water cools the heated beak without getting warmer itself. As soon as we feel, after the introduction, that the beak moves freely in the bladder, we light the lamp again by simply turning the key to the left, and are now able to inspect the bladder in perfect daylight.

The advance, Mr. Chairman, that will result from this simpler and more convenient cystoscope for the diagnosis and treatment of diseases of the bladder is great and easy to see. There is no doubt that cystoscopy, this new method of ocular inspection of the interior surface of the bladder, "has as great importance for the diagnosis of diseases of the bladder as laryngoscopy has for those of the larynx" (Nitze).

I should here like to state that I had studied this chapter carefully and with great interest for many months, when Nitze's treatise, mentioned above, the best and most complete we have on cystoscopy in literature, was published. It is rather difficult now to bring out anything new on this subject. Nitze leaves hardly anything unsaid that could be thought of, only in regard to the future progress and diagnosis and treatment with the help of the cystoscope. I follow him in some of my further explanations.

Before giving you a summary of this advance, I must mention the conditions that have to be fulfilled if the endoscopical examination of the bladder is to be successfully made. I just said "advance." I should better say "*future* advance" that will surely be made in the diagnosis of obscure diseases of the bladder with the help of the cystoscope, and that not only by the specialist, but by the general practitioner also.

There are three conditions:

1. The calibre of the urethra must be sufficiently large to allow of the passing of the cystoscope (No. 23 French).

2. There must be sufficient capacity of the bladder. Nitze usually injects five ounces, a quantity that can be retained in nearly every instance. To get an easier view of the upper region, he adds some air. The bubbles can be seen very distinctly with the cystoscope.

3. We must be able to have a transparent fluid in the bladder, at least during the time of examination. It is important to know, however, that the water does not need to be perfectly clear. The view we get when the water is a little muddy is still quite satisfactory. In cases of hæmaturia originating in the bladder, it will be advisable to postpone the examination until the flow of blood has ceased.

Then, also, I should like to tell you, Mr. Chairman and gentlemen, what is to be seen in the healthy bladder before we inspect the morbid one. Of course, the picture is more monotonous than, for instance, that of the larynx, but it is very interesting nevertheless.

The normal mucous membrane of the bladder mostly has a pale, yellowish-red coloring in bright illumination, more rarely a pink one. If the prism is brought near enough, we perceive in it fine ramifications of small blood vessels, similar to those that we see on the retina with the ophthalmoscope. Furthermore, there come into view irregular projections (the innermost layer of the detrusor muscles) between flat, but sometimes very deep, holes. The latter ones are "acquired diverticula," which are found, according to Nitze, much oftener than is usually believed. The other class of diverticula—the congenital ones—will be seen when the mucous membrane has its normal smoothness and only shows slight elevations. At last the orifices of the ureters are conspicuous. In most cases they can be seen with great ease. I myself have been able to see them very plainly in all the cases I have thus far examined. They appear as long, slit-formed notches in the middle of an oblong protuberance, or as small, round holes. In watching more closely the orifice of either of the ureters for some time, I have easily been able to see how the urine entered the bladder at intervals of from thirty to sixty seconds. I have been enabled to do so by the whirls which the urine—viz., a solution of salts—produced in the water that had been injected into the bladder. We can see the same arise at any time when we pour urine into a test-tube filled with water. On the same occasion I observed quite an interesting physiological phenomenon, which is not mentioned, as far as I have seen, in any one of our hand-books on physiology. You all know that the urine enters the bladder at intervals with a rush, and so much so that it forms a real little fountain when the bladder is filled with air, or opened by incision. The urine is pressed forward, first, by the *vis a tergo*; second, by the difference in pressure between the pelvis of the kidney and the cavity of the bladder; and, third, by the peristaltic contractions of the ureteric muscles. Now, as there are in the wall of the ureter more muscular fibres running longitudinally than transversely,* the orifice of the ureter, and with it the elevation of the mucous membrane in which it ends, is drawn *inward* at the end of each conveyance of urine into the bladder, the orifice and its nearest adjacent parts then taking the shape of a funnel. After a few seconds it returns to its former position. That this occurs each time and is a physiological phenomenon I have fully convinced myself in two cases.

Now, what is the advance in the knowledge of the different diseases of the bladder which cystoscopy has accomplished, in addition to what we learn by the examination of the urine and of the interior of the bladder by means of sounds and the combined rectal palpation?

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* Ranke, "Grundzuge d. Physiol.," 1875, p. 496.

First, we are able to decide with absolute certainty whether the bladder is healthy or morbid.

Every one of you, gentlemen, who has been unable to make out in a certain case of urinary trouble the location of the disease, after a very careful chemical and microscopical analysis of the urine, and exhausting all the older methods of examination, will appreciate the great value of such a surety.

"The negative result is here fully equivalent to the positive one;" for, if it is proved that the seat of the disease is *not* in the bladder, then it must be looked for somewhere else, especially in the upper urinary passages, most probably in the kidneys.

The importance of this fact—namely, to be able to decide whether the bladder is healthy or morbid—for a diagnosis *per exclusionem* is evident. Only a few days ago I had an interesting experience in that respect. A young man, twenty-five years of age, was sent to me by a colleague for cystoscopy on account of an obscure trouble of his urinary system. The patient had had gonorrhœa twice, the last time fifteen months ago. It was complicated with catarrh of the neck of the bladder. Lately he had been treated with local applications, made with the help of the endoscope; but he never was relieved. For about seven months there had been a constant painful feeling of pressure in the region of the bladder, sometimes retention for a whole day, sudden stop in the flow of urine, and no relief when the bladder was emptied. Now and then the last few drops were mixed with blood. No symptoms of catarrh, no tenesmus. The urine contained a trace of albumen. Specific gravity, 1·016. The patient was a good deal emaciated, unable to work, and depressed. The early history revealed that he had masturbated more or less for many years when he was a boy.

On inspecting the cavity of the bladder with the cystoscope, I could only detect a very dense network of enlarged small blood-vessels, "a marked hyperæmia" of the trigonum Lieutaudii; everything else was in a perfectly normal condition.

Whether this hyperæmia, undoubtedly a continuation of the catarrh of the neck of the bladder, is the cause of all trouble, I don't venture to decide. Perhaps it is. If so, one or more instillations of a few drops of a five or ten per cent. solution of nitrate of silver into the trigonum and neck of the bladder should bring some change for the better. Should this not happen, the symptoms must be looked at as dependent upon a nervous origin, either reflex spasm of the sphincter or paresis of the detrusor muscle. Certainly the formerly obscure disease, and the way of its treatment, has thus been materially cleared up by the cystoscopic examination.

Can we prove now with the cystoscope which kidney is diseased? It seems that we may perhaps be able to do this in future, when we have sufficiently learned to see and to manipulate inside of the bladder after the cystoscope has been introduced. Either we could attempt, according to Nitze, to push a very thin catheter (introduced alongside the cystoscope into the bladder), under the guide of our eyes, into one of the orifices of the ureters—provided they have been found at all—and draw the urine directly from the kidney, or we might be able to observe out of which ureter the blood escaped, for instance, in a case of hæmaturia. Many a time the blood has been seen flowing from an injured papilla of a tumor of the bladder that was examined with the cystoscope.

Looking over the well-known diseases of the bladder, we shall be able, first of all in *catarrh*, to make a strict differential diagnosis between the different forms—acute, chronic, hæmorrhagic, diphtheritic—and proably learn to diagnosticate *in the picture* those differing in ætiological respects, especially the tuberculous one. It will be very easy to see ulcerations. Diverticula are very exactly demonstrated. Even in 1883 Sir Henry Thompson maintained that their presence could not be proved *in vivo* in the majority of cases.

Foreign bodies not to be detected by the sound, even in the hands of a well-experienced surgeon, may not only be seen, but localized.

A very interesting case of this kind was published by Nicoladoni* two years ago. Most of you have read it in the journals. In a lad eighteen years of age, who had introduced a medium-sized pin, head forward, into his urethra nine days before, he saw, by means of the old-shaped cystoscope, the pin fixed in the right part of the anterior wall close to the vertex after he had tried in vain to detect it with the probe. The pin cast a shadow on the opposite wall of the bladder. In the same year v. Dittel† saw a piece of sealing-wax, covered with salts, in the bladder.

In 1884 Fillenbaum‡ found in the bladder of of a fifty-four year-old tabetic patient, who catheterized himself, the broken piece of a Nélaton catheter with the cystoscope. Grunfeld's endoscope, that was tried first, gave a negative result.

Last year Nitze § diagnosticated in the wall of the bladder of a woman a silk ligature, and removed it with the help of his cystoscope. Martin, of Berlin, had performed ovariotomy on her a short time before, and ligated the pedicle and vessels with silk. Some of the ligatures caused an intraperitoneal abscess that perforated into the bladder.

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* "Wiener med. Wochenschr.," 1886, 7, 8.

† "Wiener med. Wochenschrift," 1886, p. 793,

‡ "Deutsche Zeitschr. f. Chirurgie," vol. xx, p. 453.

§ Langenbeck's "Achiv," vol. xxxvi, 3, p. 680.

It seems almost unnecessary to mention that we can plainly see stones in the bladder, make out their size, shape, and mobility, and percuss them with the beak of the cystoscope by the guidance of our eyes. (Those gentlemen who take interest in the matter may try this afterward on the phantom.) Cystoscopy is of special importance for the diagnosis of encysted stones.

Allow me, Mr. Chairman, to give here the short history of a case of stone in the bladder that recently occurred in my private practice, and had passed through the hands of a number of doctors of this city. It shows the predominant place we must accord to cystoscope in the diagnosis of obscure diseases of the urinary system : L. T., aged twenty-three years. First gonorrhœic infection two years ago ; second, last year. Complications with prostatitis, catarrh of the neck, afterward of the whole bladder ; symptoms of stricture. The necessary treatment was ordered and the bladder washed for eight months. No material benefit. In the course of treatment, about seven months ago, a marked chill of ten minutes' duration set in, with pains in the right lumbar region. Since that day there has been a large amount of pus in the urine, sometimes the sixth of the whole quantity. Soon a good deal of albumin was found, and, the diagnosis being made as pyleonephritis ascendens, the prognosis, of course, was very doubtful. In the beginning of February the patient came to my office. I found stricture of the pendulous and membranous portion of the urethra, large prostate, painful on pressure, and urine with a large amount of pus and mucus, very few cells, resembling those of the pelvis of the kidney, prostate corpuscles. No pain in urinating, no blood, no sudden stop in the flow of urine. The patient being opposed to any direct surgical interference, I had to content myself with widening his strictures by the introduction of steel sounds and with internal treatment, keeping in view internal urethrotomy and drainage of the bladder, or, as soon as it could be diagnosticated whether both kidneys were affected or only one, nephrotomy. A careful examination of the bladder revealed nothing at all, the same result the other colleagues had had before me. At that time I received Leiter's cystoscope, and at once resolved to look into this bladder. Without any difficulty I saw there two dark-brown, even stones, of the size of a hazelnut, lying in the groove behind the swollen prostate. With the beak of the instrument I succeeded in throwing them out into the fundus, where I could easily percuss them, finding them very hard. A large snow-white piece of coagulated mucus was lying at their side, its slender, dentritic ramifications floating in the fluid. The mucous membrane of the bladder was more or less healthy. Only here and there I saw a purple-colored spot with an adherent flake of mucus. I further discovered the mouth of the ureters without any difficulty, and could plainly perceive how whirls originated there that permanently set in motion the whole injection fluid. I was not yet able to make out whether the urine in entering the bladder was clear or muddy. But as the injected water, at first perfectly transparent, become opaque in a few minutes, I could conclude that the pus most probably descended from one kidney or both. Thus far the patient, who feels otherwise very well, has not consented to the proposed removal of the stones. Meanwhile I have had the pleasure of demonstrating them to Dr. A. G. Gerster, who also saw them very distinctly.

Returning to our subject, lastly, let us see in which way the treatment of *tumors of the bladder*—this favorite child of modern surgery of the bladder—has been benefited by cystoscopy. One word will say *how* we did and shall advance here, too, "early diagnosis." If the cystoscope had brought nothing else than this, it would be enough. What prevents our patients on whom we have operated for tumor of the bladder from enjoying the benefit of the removal of the new growth for many years still, to-day, where tecehique and after-treatment have been so greatly improved, is not the operation itself, epicystotomy or median section. It is pyelonephritis, produced by the long-continued disease of the bladder. As long as we drain the bladder after the operation (by Trendelenburg's T-tube in open-wound treatment, or a permanent catheter after having closed the wound of the bladder by suture), we also drain the pelvis of the kidney. Every drop of urine that enters the bladder from above will leave it immediately by way of the tubes. Reflux is impossible. Of course, the uncomplicated pyelitis will get better under this treatment, as well as the chronic catarrh of the bladder; both even may get cured by prolonged drainage. But, unfortunately, nephritis is so often combined with pyelitis. Pyelonephritis can *only improve*. A "*restitutio ad integrum*" by draining the bladder would be an exceptional case. To cure it we should have to add nephrotomy, and even that sometimes without permanent success, or if the diagnosis of a unilateral affection has been made, nephrectomy.

I, too, had to have this experience in the case of a patient, fifty-three years or age, in whom I extirpated a villous growth (papilloma) by epicystotomy in October, 1886. It had the size of an apple, and had troubled the patient for several years. He was entirely relieved of all his troubles, was well last summer and able to work, and enjoyed his life. He could easily retain the urine for three hours and more, and passed the water in a strong spurt. But by and by the quantity of albumin in the urine, that had never fully disappeared, increased, the old nephritis that had slumbered for several months made progress, without a recurrence of the chills that had frequently set in before the operation, caused by the cystic pyelitis. A few weeks ago the urine contained about one-third of its volume of albumin. The patient is now unable to work, and will certainly die in a short time. If he could have been examined with the cystoscope two years ago, at the time of the first spontaneous hæmaturia, before he came under my attendance, and with the cystoscope the diagnosis had *then* been made and the small new growth removed, the patient would probably now be cured.

That cystoscope will enable us to diagnosticate tumors of the bladder *early* is certainly a progress that can not be overestimated. It will now become the duty of the attending physician to take care that the cystoscope is introduced into the bladder of a patient who is attacked with hæmaturia of short duration without any warning. He will no longer satisfy himself and the patient with the diagnosis so much in favor—"hæmorrhoids of the bladder."

Of course, we shall try to find out the size, location, and manner of insertion, whether the tumor has a pedicle or a broad base. V. Bergmann was enabled, in performing epicystotomy for tumor, not to incise the site of insertion, and consequently to avoid a serious hæmorrhage, having with Dr. Nitze, localized the growth before by endoscopical examination. Nitze reports in his essay sixteen cases of tumor of the bladder (Nitze 8, Schustler 7, Nicoladoni 1) in which the diagnosis had been made or confirmed with the cystoscope. As Dr. Nitze writes me last week, he has diagnosticated seven more of them with his instrument since his last publication. Six of them were operated on. The diagnosis in regard to size, location, etc., was sustained by the operations in every particular.

But the cystoscope will often have to reveal the secret hidden in the bladder, not only in recent cases, but also in an advanced stage, of tumor, when the other diagnostic means have failed. It is well known that often in a case of tumor of the bladder nothing can be found in the urine except blood and the evidences of catarrh, that examination with sounds and the combined rectal palpation give no positive result, and that we do not always succeed in tearing off small pieces for microscopical examination. Besides, such particles have caused grave errors when examined. Cases of Czerny's, Kuster's, and Tuchmann's demonstrate this possibility.

It need not be mentioned that we shall not depend upon the result of cystoscopy alone. In some instances it will undoubtedly be very difficult to make with its help the differential diagnosis between a new growth that covers a large spot and chronic circumscribed catarrh of the bladder. We rather ought to compare the result gained by ocular inspection of the vesical cavity with those achieved by other methods, judge by all, and then only operate.

Let us see finally, Mr. Chairman and gentlemen, how much the *treatment* of diseases of the bladder has profited by the more exact diagnoses made with the cystoscope. A very great deal! The catarrh in its variations will undergo different treatment; ulcerations of the wall of the bladder will be attacked with the knife, those of tubercular character, according to Schatz, radically extripated, the wall of the bladder included. Diverticula could be washed with catheters of a special curvature, as Nitze proposes, but has not yet tried. Their presence would require a very careful distension of the bladder for the suprapubic incision. We know that rupture of the bladder especially takes place at a diverticulum with thin walls. Foreign bodies can not only be diagnosticated, as mentioned above, but plainly localized, and therefore removed with absolute certainty by one of the methods. In regard to lithiasis, cystoscope will again intensify the international discussion, going on for about five years, on "which is the best method of operating"—whether by epicystotomy or median section, or by lithotripsy or litholapaxy. The main reproach to litholapaxy, the frequent and early recurrence of the old trouble, has lost its foundation, as we are now enabled to inspect the interior of the bladder and to crush and evacuate as long as there are fragments to be seen. When this is accomplished the patient will be cured in the simplest and quickest manner. On account of this possibility, Nitze predicts for the crushing method a due and firm place among the different operations for stone in the bladder. How far this will be realized we must wait to see. It has been mentioned above that encysted stones will be seen. The possibility of their removal is thereby materially increased.

The vital statistics of tumor of the bladder will be greatly improved by the early diagnosis. To remove small benign polypi, Nitze proposes not to incise the bladder, but to crush the growths, when localized, with a long forceps, introduced *per urethram*, and then to evacuate them. We can only agree with him when he says that a strong and healthy patient who passes blood, pure or mixed with urine, for a few days will more readily submit to cystoscopy and tearing or crushing of the tumor than to a more serious operation. Whether that will be realized, we again must wait to see. At all events, it seems to be easier to destroy a polypus floating in the fluid and having an insertion known to us than to perform median section and grasp the growth within the empty organ by the aid of digital exploration, as recommended by Thompson. Large and infiltrating neoplasmata will belong, as formerly, to the suprapubic incision.

It is evident, Mr. Chairman, that the advance in the diagnosis and treatment of the diseases of the bladder, as described by me, is not so easily, and especially not so quickly, made. No, cystoscope not only wants to be thoroughly studied in regard to technique, but has to be investigated yet in many respects. "Now, being enabled to inspect the morbid bladder with the help of brilliant illumination in the living subject, the characteristic pictures of different pathological alterations will have to be studied in the same manner as it was necessary to do and was done in regard to the larynx and the eye when the laryngoscope and the ophthalmoscope were invented." "When the cystoscopy of to-day," says Nitze, "is of the same age as, for instance, laryngoscopy, that has been diligently and enthusiastically cultivated and improved by generations, then it will have, beyond any doubt, an equal, perhaps even a greater, surety in the diagnosis of pathological conditions of the bladder."

Although I am not able to-day, Mr. Chairman and gentlemen, to let you inspect the diseased bladder of a living subject, I sincerely hope that the instrument that allows us to do this in such a simple and handy way is sufficiently interesting to justify me in its demonstration and a short discussion of the new branch of surgical diagnostics created by it—cystoscopy.

AN ACT

To Amend the Charter of St. Mary's Hospital of the City of Brooklyn, and to enable such Corporation to establish a Medical and Surgical College in connection with the Hospital now maintained by them.

We are indebted to the Hon. Eugene O'Connor, Senator, for a copy of the bill establishing a medical school at St. Mary's Hospital.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1.—The St. Mary's Hospital of the City of Brooklyn, a corporation duly incorporated under and by virtue of the laws of the State of New York, is hereby authorized and empowered to establish and maintain in its hospital and upon the lands and premises in the City of Brooklyn, where it is now or hereafter may be located, a medical and surgical college for the promoting of medical science and instruction in the department of learning connected therewith, and said corporation shall possess full power and authority to make and establish all rules and regulations necessary for the government, protection, and advancement of such medical and surgical college, which college shall be known and designated as "The College of Physicians and Surgeons of St. Mary's Hospital of the City of Brooklyn." And the said corporation is hereby authorized and empowered to establish and maintain a faculty of medical and surgical professors and teachers in connection with their said college, and shall have power to grant and confer the degree of doctor of medicine upon the recommendation of the faculty of such college; but no person shall receive a diploma conferring such a degree unless he shall be twenty-one years of age and shall have received a good educatian and pursued the study of medical science at least three years after the age of sixteen with some physician and surgeon duly licensed by law to practice his profession, and shall also after that age have attended two complete courses of lectures delivered in an incorporated medical college, the last of which courses shall have been delivered by the professors of their college. In testimony of conferring such degree, a diploma, signed by the president and secretary of said corporation and the professors of such college, to which shall be affixed the corporate seal, shall be delivered to each recipient of said degree, which diploma shall have the same force and effect as a license to practice physic and surgery, as are given by law to the licenses granted by any incorporated medical society in this State.

§ 2. The said corporation shall also have the power to establish and maintain upon the lands and premises occupied by it an infant asylum, to be known as the "Infant's asylum of the City of Brooklyn" at St. Mary's Hospital, in which said corporation shall be allowed to keep and maintain and educate infant children of the age of two years and upwards, and to establish all needful rules and regulations for the admission and discharge of such infants, and for their proper care and government while there.

§ 3. The said corporation, the St. Mary's Hospital of the City of Brooklyn, shall possess all the power conferred by chapter eighteen of the first part of the revised statutes, so far as the same may be applicable thereto, and in like manner be subject to the provisions thereof, so far as not hereinbefore exempted therefrom.

§ 4. This act shall take effect immediately.

EXTRACT FROM THE ADDRESS OF DR. A. Y. P. GARNETT, PRESIDENT OF THE AMERICAN MEDICAL ASSOCIATION, CINCINNATI, 1888.

In casting about for a subject concrete in its nature and directly useful in its application, he had determined, he said, to submit for consideration a few practical reflections upon the mission of the American Medical Association.

The paternal relation of this association to the medical profession of this country placed it under the gravest responsibilities. But a retrospect of the almost half century of its existence showed no reason for discouragement, and, in fact, many reasons for congratulation. The members should not, however, consider that they had accomplished their mission until they had brought about a radical and thorough reform in the present system of medical education in the United States. They should make every endeavor to elevate the system of medical education in this country to a standard equal in dignity and attainment to that which obtains in Europe. The annual meetings of the association must be held solely for the purpose of scientific consideration supplemented solely by the pleasures of social intercourse.

Rapid progress has been made in this country, in some departments of medicine, during the last decade, yet we are still confronted by the fact that our medical schools remain very nearly the same.

True, this subject has been constantly discussed, but the question still remains, What can this association do to further raise and promote a higher standard of medical education in the United States, to curtail the number of medical schools, and thereby gradually to restrict to a conservative limit the annual host of graduates turned loose upon the public? An explanation of the fact of the failure of this association to effect an improvement in medical institutions may be found in the fact that a large proportion of those who now attend the meetings are directly or indirectly connected with medical institutions and are influenced thereby. While they have done much for this association, they have not wielded the power they possess to further the advance in medical education. We have medical colleges in this country unsurpassed by those in Europe in their essential appointments and facilities for education, yet we fall far behind the latter in the systems of study which we pursue. There is also a radical difference in the education of the mass of students of this country and of Europe. The European medical student is confronted at the very threshold by the rigid requirements of a fixed collegiate standard. He must have some educational capital or mental training to build upon before he can hope to master the complex and difficult work before him.

In this country the multitude of medical schools offering to the educated and the uneducated, by low fees and short terms of study, inducements to become doctors, together with the almost universal desire among laborers to become doctors, has worked incalculable mischief. We have waited almost a half century for the desired reform to be effected, but our expectations have not been realized. Many excuses have been brought forward, but there is no excuse which will free the medical schools of this country from the responsibility of the odious defects of our system of medical education. The ratio of professional men in the United States to the population exceeds that of any other country in the civilized world.

The ratio of practitioners of medicine to the population of the United States at present is about one to every 580, and there is little danger that this ratio will be lessened. The supply will always equal the demand, in despite of all difficulties. Over a hundred years ago, when medical education was much more difficult to obtain than at present, Addison, in his *Spectator*, said: "If, in the third place, we look into the profession of physic, we shall find a most formidable body of men; the sight of them is enough to make a man serious, for we may lay it down as a maxim, that when a nation abounds in physicians it grows thin in people. This body of men in our time may be described like the British army in Cæsar's time—some of them slay in chariots, and some on foot."

To facilitate the attainment of a higher medical education, the speaker offered the following propositions:

I. That a standing committee, to be called a committee on legislation, be appointed for each State, Territory, and the District of Columbia, to consist of five members of the medical profession in good standing, three of whom shall have no official connection with any medical school, whose duty it shall be to carry out, so far as possible, the following instructions:

First: That said committees, or a majority thereof, shall attend the sessions of their respective legislatures, or as often as their duties may require it, for the purpose of using all honorable means looking to the reduction of the number of medical schools in the United States, and a consequent diminution in the number of medical graduates. As a practical measure to this end, they urge the passage of a law requiring that, in the future, charters for creating medical schools shall contain a clause requiring that a full term of four years' study be required before the granting of a diploma to any student, and that no student shall be matriculated who has not passed an oral and written examination in the ordinary branches of academic study. Further, that any college failing to show a greater number than fifty matriculates annually, for three consecutive years, shall forfeit its charter and be abolished.

Second: That these committees use all diligent effort to secure an ordinance creating a board of medical examiners in each State and Territory, which shall have no connection with any medical school, and which shall be required to examine all applicants for license to practice medicine in their respective States. Any person practising any branch of the healing art, without license granted by said board, shall be subject to the penalties as the law may provide. This committee should also be authorized by statute to nominate, to the governors of the State and Territory, competent and learned members of the medical profession to constitute said board of examiners.

Third: Thal the chairman of said committees of five be required to submit, at each annual meeting of this Association, a report embracing a full statement of what has been accomplished by each.

II. That the faculties of the several medical schools within the limits of the United States be once more urgently requested to call a convention at some central point, for the purpose of consultation and the adoption of some more general and uniform system of medical education. That, in addition to a four years' term of study, the requirement of a preliminary education, including some knowledge of the classics, shall be suggested. Any school or college which shall refuse to enter into such an arrangement shall be excluded from all connection with the American Medical Association, and its alumni shall not be recognized as members of the regular profession.

The speaker said that he was aware that these suggestions embraced some very radical, and seemingly impracticable, changes. If these seeds fell upon barren soil, he would at least enjoy the consciousness of having honestly, conscientiously, and fearlessly met the great and pressing issue of the day.

MEDICAL ADVERTISEMENTS AND THE RELIGIOUS PRESS.

The following resolutions were adopted at the Thirteenth Annual Session of the State Medical Society of Arkansas, held at Fort Smith, April 25, 26 and 27, 1888, and ordered to be furnished to the American Medical Association, the medical and religious press, and to the State Medical Societies, soliciting their co-operation in bringing about a correction of these grievous and palpable errors:

Resolved, That the members of the State Medical Society of Arkansas have for years observed with pain and mortification the patronage given to charlatanism in all its multifarious aspects by the religious press of our country.

Resolved, further and most specifically, That the appearance in religious papers, ostensibly published for the inculcation of truth and morality, of serious homilies on prayer and praise side by side with cures for consumption, cancer, Bright's disease, and other incurable ailments, to which an editorial endorsement is often given, as well as secret preparations under the cloak of remedies for disease, but really intended for purposes of fœticide and other immoral uses, largely tends to shake the confidence of the profession of medicine in the integrity and purpose of the managers and editors of such journals.

Resolved, further, That it has been the well-known custom of the profession to render services gratuitously to clergymen, which we do not regret nor do we propose to recall, yet we must assert that the frequent occurrence of endorsements and recommendations of the clergy of peripatetic doctors and advertising charlatans has in many instances been the only reward of our gratuitous services.

Resolved, further, That we are aware that the editors of religious newspapers admit the painful situation in which these advertisements place them, and attempt to excuse themselves by saying that it is necessary to take these advertisements in order to obtain means to conduct their papers ; but, in the language of orthodox theology, we would say : "Put behind you that damnable doctrine that we must do evil that good may come."

Resolved, further, That, as a Society, we declare that the continued perpetration of the above offenses by some of the clergy and religious press brings harm to the bodies of their constituency, and damages materially their influence upon the thinking class of the medical profession.

Resolved, That the Secretary be instructed to furnish copies of these resolutious to the religious and medical press of the United States, to the American Medical Association, and to the State Medical Societies, soliciting their co-operation in bringing about a correction of these grievous and palpable errors.

OXALATE OF CERIUM IN SEA-SICKNESS AND OTHER DISORDERS.

BY W. H. GARDNER, M.D.,

Surgeon U. S. A., Fort M'Henry, Md.

In the article on "Sea-sickness," in THE MEDICAL RECORD of March 24th, nothing is said about the use of oxalate of cerium in this distressing disease. Now I have been a traveller by land and water ever since I was able to toddle around, and have met many cases of sea-sickness—in stages, ambulances, cars, boats and ships—and I can confidently assert that oxalate of cerium administered in ten, fifteen, or twenty-grain doses, every two or three hours, in about one tablespoonful of water, will cure more cases than champagne, bromide of potassium, chloral, or anything else I ever tried. I do not think I exaggerate when I state that it will cure, or materially relieve, seventy-five per cent. of all cases that come up for treatment,

I was induced to use this remedy, in these seeming large doses, by a patient with gastritis following a debauch, who came before me years ago. I had given him pounded ice, chloral, bromide of potassium, creosote, hypodermics of morphine, mustard over the stomach, and all that the books prescribe or the ingenuity of the profession has devised; then I prescribed six powders of oxalate of cerium, five grains each, one powder to be taken every two hours in a tablespoonful of water. I went to see him six hours afterward, and found his stomach quieted, and he was drinking some iced milk. I found he had taken the first powder (five grains) and had thrown it up, so he took the remaining five powders as one dose (twenty-five grains) and it quieted the stomach at once, and he got well immediately. Shortly afterward I was called to see a man who had been shot in some little discussion over a game of cards; the ball—thirty-one calibre—entered on the right side of the abdomen, ranging upward, backward, and to the left, not wounding the bowel, but probably some branches of the solar plexus, and lodged somewhere in the muscles to the left of the spine; there was little or no hemorrhage (external), and when he recovered from the shock, under the use of ammonia, brandy, and digitalis, the most persistent symptom was the continuous and exhaustive vomiting, which, however, was controlled in about twenty hours by the use of ten grains of oxalate of cerium in a tablespoonful of water every three hours. The man made a speedy and good recovery, and is still driving a stage-coach in Arizona.

I have used the oxalate in hundreds of cases of sick headache, and the morning sickness of pregnancy, and almost always with marked success; but it must be used in at least ten-grain doses for adults, to do any good. I have also found it very useful in relieving the cough of phthisis in these doses. I do not pretend to know its *modus operandi*, but believe it acts as a sedative to the pneumogastic and sympathetic system of nerves, and I have never seen any unpleasant effects from its administration in twenty-grain doses every three hours.—*N. Y. Medical Record.*

WEAR AND TEAR OF THE MEDICAL PROFESSION.

BY JOHN H. RAUCH, M.D.,

Secretary State Board of Health of Illinois.

Reprint from Proceedings of Illinois State Board of Health.

Since the close of 1887 I have been enabled to partly tabulate and analyze a mass of material accumulated during the past ten years bearing on the wear and tear of the medical profession of Illinois.

Even prior to the beginning of that period I had become impressed in a general way with the conviction that this wear and tear was underestimated; that the active practice of medicine was not so conducive to longevity as was popularly supposed, nor as writers on such subjects—basing their conclusions on the data obtained from medical biographies, cyclopedias, etc.—had been led to believe.

The source of error in this latter instance is obvious. The subjects of biographies, cyclopedia articles, memoirs, etc., are necessarily the men who have attained eminence, or at least prominence; and, in the nature of the case, prominence in the medical profession is largely the fruit of long service and length of days. In other words, the exceptional class which, partly by very reason of long life, has attracted most attention has been hitherto taken as an indication of the longevity of the profession as a whole. Thus we find one writer (Dr. Geo. M. Beard) citing the deaths of 490 Massachusetts physicians whose average age at death was 57 years, and 35 out of every 100 of whom attained to 79 years. The average of the subjects of Gross' Medical Biography was 59 years, although it is ingenuously added that these "included several who died before their prime." Similarly Thacher's Medical Biography makes mention of 145 physicians, and the fact that their average age at death was 62.8 years is quoted—as are the other instances—as proof of the longevity of medical men.

Still another fact should be taken into consideration in the case of the class who figure in biographies. It is composed very largely of city physicians and of the men who, in smaller towns, are in a position to select their practice and adjust their labors with some regard to regular hours of sleep, meals, and relaxation. Comfortably housed at home, properly protected from the weather when making visits, free from the harrassing cares of the *res angusti domi*, and beyond the torturing anxiety which too often besets the struggle for practice—the conditions of life in these cases are undoubtedly favorable to longevity.

But these are the fortunate few who bear no more numerical relation to the rank and file of the profession than the general officers do to the rank and file of an army.

Compared with these biographical subjects—upon whose length of honorable and successful years is predicated the assertion that the wear and tear of the profession does not prevent its members from attaining a high average longevity—compared with these I have, as a result of an extensive correspondence and systemic record, obtained data which show that the average age at death—in Illinois, at least—is not much over 52 years, and that only about 11, instead of 35, in every 100 attain the scriptural limit of three-score years and ten.

In older communities it is entirely probable that this rate may be exceeded. In Massachusetts, for example, the average age at death of 1,166 physicians, occurring during a period of nearly thirty-two years, is given at about 55 years; but the Illinois statistics—collected with painstaking care and dealing with more than double the number living annually—do not furnish any such favorable result. To a very great extent the discrepancy between Illinois and Massachusetts is due, no doubt, to the different conditions which obtain in the two communities—the one a comparatively newly-settled State, with a population containing less than the normal proportion of the middle-aged and beyond; the other, one of the oldest settled commonwealths, with an excess of ages beyond the middle life, and with what Dr. Holmes calls the "adjustable condition of living" so perfected as to materially conduce to the prolongation of life. But, in addition to this difference, there must also be taken into consideration the radical difference in the modes of collecting the data upon which the average age at death has been computed.

For Illinois these data have been obtained through official relations with an aggregate of some 14,000 physicians during a period of over ten years. The personnel may be taken as fairly representative of the profession generally, since it is composed of about one-sixth of physicians of a large city, Chicago, and the remainder of physicians of smaller cities and towns. During these ten years there has been an average of 6,000 living per annum, and the aggregate deaths have been about 800, or an annual death-rate of 13.3 per thousand. These round numbers and the period covered are cited to show that the data are extensive enough to insure substantially trustworthy results in the tabulations and deductions.

Of the total number of deaths—800—the age at death and the cause of death have been obtained in 686 cases, and from these data, from information contained in the official registers of the State Board of Health, from the statistics of the United States census and the Mortality Reports of Dr. John S. Billings, the following tables have been constructed.

Table No. 1 shows the annual number of Illinois physicians living at given ages, the anual number of all Illinois males living at the same ages, and the annual deaths for each class at the same ages. The ages are grouped in decades from 30 to 80: under 30 they are comprised in one group, embracing the ages from 24 to 30; and all over 80 form one group. The limits of the first group—24 to 30—are fixed by the fact that no deaths are reported under 24 years of age.

Table No. 2 shows the yearly death-rate per 1,000 among Illinois physicians at the ages specified; among the whole male population of Illinois, embracing all occupations—physicians included; and among both sexes of the whole population of the United States.

TABLE I.

Average Number of Physicians in Illinois living Annually at grouped ages, and of all Males in Illinois at same ages; Average No. of Deaths annually of each class, 1878 to 1887, inclusive.

AGES.	LIVING ANNUALLY.		DEATHS ANNUALLY.	
	Physicians.	All Males.	Physicians.	All Males.
24–30	1,409	156,662	9	1 033
30–40	1,750	201,889	13	1,536
40–50	1,304	144,997	15	1,501
50–60	877	97,536	17	1,626
60–70	441	49,003	15	1,570
70–80	177	19,717	9	1,269
Over 80	42	4.542	2	572
Totals,	6,000	674,346	80	9,107

TABLE II.

Yearly Death-rates per 1000, of Physicians in Illinois, of all Males in Illinois, and of both Sexes in the United States—at grouped ages.

AGES.	YEARLY DEATH RATE PER 1,000.		
	Physicians.	All Males.	Both Sexes.
24–30	6.4	6.6	9.7
30–40	7.4	7.6	11 9
40–50	11.5	10.3	13.9
50–60	79.5	16.5	18.1
60–70	31.1	32.0	23.8
70–80	53.0	64.4	46.9
Over 80	476.1	126.0	113.3

An examination of the above tables shows that while the death-rate of physcians in Illinois for the first few years after entering upon the practice of medicine is lower than that of all males in Illinois, and greatly less than that of the whole population of the country at large, it increases beyond that of the former class during the decade from 40 to 50 and is greater than that of the latter class in the next decade.

The obvious inference is that physicians on entering practice form a class of selected lives, since they have an advantage of nearly 3 per cent. as compared with all males at the same ages—that is from 24 to 40; and of over 50 per cent. as compared with the total population, both sexes, at the same ages, this latter great disparity being no doubt largely due to the casualties among women during the child-bearing period.

As the wear and tear of practice begins to tell this advantage is soon lost, so that during the period from 30 to 70 the death-rate of physicians is 8 per cent. greater than that of all males, and during the period from 40 to 70 it is more than 11 per cent. greater than that of both sexes.

An examination of the causes of death in the following table reveals the result of the exposure, irregular hours, broken rest and mental anxiety which are the lot of the average practitioner :

TABLE III.

Principal Causes of Deaths of Physicians in Illinois during the 10 years ended December 31st, 1887.

Causes.	Number.	Per Cent. of Total.
1. Phthisis	122	15.3
2. Diseases of the Lungs and Respiratory Apparatus.	115	14.4
3. Diseases of the Brain and Nervous System	105	13 1
4. Zymotic Diseases	82	10.0
5. Misadventure and Violence	75	9.4
6. Diseases of the Heart and Blood-vessels	67	8.4
7. Diseases of the Stomach and Digestive Tract	48	6.0
8. Bright's Disease	31	3.8
9. Diseases of the Liver and Appendages	26	3.2
10. Enteric Fever	24	3.0

Of the grouped causes of death above given it will be seen that consumption, diseases of the respiratory organs (including 91 from pneumonia) and Bright's disease caused 268 deaths, or more than one-fourth of the total. If to these be added a share of the deaths from diseases of the heart—the sequelæ of rheumatism—a fair estimate may be made of the effect of exposure to the vicissitudes of weather upon the wear and tear of medical life. As a result of mental strain and anxiety, of insufficient, irregular and interrupted sleep and similar causes is the total of deaths from diseases of the brain and nervous system, embracing 43 from various forms of paralysis. In the group of zymotic diseases (enteric fever given separately) there were 5 deaths from diphtheria, 1 each from small-pox and yellow fever and 8 from traumatic infection (septicemia, etc.) all contracted from attendance upon patients.

Less creditable to the morale of the profession are the 18 deaths from over-doses of opiates and narcotics, the 7 admitted suicides and the deaths from alcoholism, direct and indirect—12 of the former and at least 8 of the latter. There is this to be said, however, in this connection—that the proportion of mortality from these causes is steadily diminishing, and my observation shows that this diminution is largely the result of an amelioration of the conditions, especially of country practice, due to better roads and methods of locomotion, increased comfort in living, and less physical strain upon the practitioner. Ten years ago the resort to stimulants upon exposure to the weather and under the harsher conditions of practice which then obtained was much more common than to-day. And this is also true of the use of opiates and hypnotics. The practitioner—familiar with their power to temporarily stimulate to further endurance, or to procure sleep when nervous and exhausted—had formerly greater temptation to resort to the use of these agents, always ready to hand.

While there is a total of 12 deaths reported during the ten years as due to "alcoholism" direct, there has been only one in the last four years; and of the 18 deaths from "over-doses of opiates and hypnotics" in the entire period there has been only one in the last three years. In addition to the amelioration in the conditions of practice as a cause of this result it is only fair to take into consideration also the improved moral status of the profession in this State.

Although the figures and deductions here submitted are believed to be substantially accurate—being if anything understatements—they are offered only as a provisional contribution to the study of the subject, which is by no means exhausted. The numbers under observation and the period covered are greater than anything heretofore utilized for this purpose, in this country, so far as I am aware, and have cost much labor, which may be materially lightened in the future by very little effort on the part of physicians in making returns of death certificates and by county clerks in forwarding them to the office of the Board. It is hoped that the interest which this presentation of the subject may reasonably be expected to arouse will lead to this result.

THE TREATMENT OF PRURITUS PUDENDI BY PEPPERMINT WATER.

Routh has used peppermint water as a lotion in pruritus at Charing Cross Hospital, and describes his mode of use and results as follows:

The B. P. preparation of aq. menth. pip. answers well, but is bulky for carrying about, and is incapable for concentration unless rendered alkaline. This is best done by borax, as being in itself soothing and antiseptic. Patients can easily make their own lotion, as required for use, by putting a teaspoonful of borax into a pint bottle of hot water, and adding to it five drops of ol. menth. pip., and shaking well, the parts affected to be freely bathed with a soft sponge.

If no cracks or sores are present, this lotion will remove the itching; but if there be eczema, etc., or rawness from scratching, it is inapplicable, olive oil, with five grains of iodoform to the ounce, being then more useful. The greatest and most permanent relief is afforded in the neurosal form, especially in the reflex pruritis which often accompanies pregnancy, and which then may take the place of reflex sickness or vomiting. It is also very useful in the pruritis which occurs in the climacteric, or in elderly women, in whom it may be only a part of a general pruritis, and also in those cases of women of all ages where the urine simultaneously becomes of very low specific gravity, without any evidence of having a gouty or granular kidney as a remote cause.

In pruritis due to pediculi, ascarides, an irritable urethral caruncle, and endocervical polypus, early cancer of the cervix, distension of Bartholini's ducts or glands, the leucorrhœa of vaginitis, endocervicitis, and metritis, or the irritating discharges of advanced carcinoma uteri, or to a gouty or diabetic diathesis, the drug excels all others, cocaine inclusive, in affording relief, whilst endeavors are being made to remove the cause.

In two obstinate cases of uncontrollable pruritis of pregnancy, where this remedy gave only temporary relief, the patients were cured by applying iodine liniment to the angry-looking cervix uteri, which method has been used successfully by Dr. John Philips and others for the similarly severe vomiting of pregnancy.—*British Medical Journal*, April 14th, 1888.

THE EFFECTS OF PRESENT EDUCATIONAL METHODS ON THE HEALTH OF WOMEN.

BY C. A. L. REED, M.D., CINCINNATI, OHIO.

Abstract of a paper read before the Ohio State Sanitary Association. Reprint from New Orleans Medical and Surgical Journal, May, 1888.

In a practice of fourteen years devoted largely, and now exclusively, to treatment of the diseases of women, my attention has been attracted to the frequency with which a certain class of cases present themselves. A young girl of fourteen, of previously excellent health and good physique, begins to lose her appetite, has headache and indefinite pains all through her body, and in short has neurasthenia. She is ordered from school, given a complete change of surroundings, and returns quite restored. At sixteen she is fairly in the high school course; bright and precocious, she shows the mental and physical vigor with which she is endowed. But there comes a change. She begins to complain of pains low down in the back, and she has serious trouble each month. Soon the periodic function fails to appear, or is scantily performed, if at all. She has a slight cough, is pallid and worn in the mornings; but at this stage, or a little later, as evening approaches, a flush is again on her cheek, the light in her eye and the red again on her lips. These are but the evanescent play of colors on a ghastly background ; she is pronounced the victim of incipient consumption, taken from the school-room, and sent in search of the health forever lost.

I could multiply the list of cases in which girls and women, pupils and teachers, have contracted diseases while in the discharge of their duties. It is the central fact in these cases, and others of which they are types, that they occur in individuals subjected to conditions and influences which obtain in ordinary school life. In endeavoring to analyze these conditions in causative relations to diseases such as have been indicated, it may be well to consider : (1) Some general questions in regard to school hygiene. (2) Some especial hygienic conditions which affect female pupils. (3) Some especial hygienic conditions which affect female teachers. (4) Some suggested remedies.

In a preliminary view of the subject as a whole, we are impressed with the idea that, whatever department of the topic we may look at, we behold a battle of contending forces ; those of the vitality of youth on the one side, and those of the unsanitary conditions surrounding them on the other. I shall therefore arrange these forces in a sort of credit and debit style, in a fancied physiological ledger, and, when I am through, will ask you to assist me in striking a balance.

The topic of general school hygiene is a very hackneyed one, and yet it is a theme of such urgent and present importance, that it should be fairly thundered at all times until a too heedless public give ear to its teachings. In opening this account, we have first to put on the invoice a splendid bundle of potentiality in the form of youth. In this connection, youth implies expansive energy, a physiological impulse to growth and development, fortified with organisms to make that impetus sustained and effective.

In this country we can put down on the side of good conditions promotive of vitality, good food, warm clothing and comfortable abodes. The school age generally furnishes a child of fair physical endowments and surrounded with fair hygienic environments at home. It is entering an arena, however, where it is to encounter antagonistic influences. The school-house itself furnishes the first adverse element in the conflict. Within its walls the child sighs for the air which has placed the bloom upon her cheeks ; she pants to resist the oppressive heat ; the odors offend her yet untried olfactories.

In the next place she is subjected to the general unsanitary conditions, but the evil of stair-climbing is especially pernicious to her, because it is very probable that she presents a case of intra-pelvic disease, provoked during her pupilage, and existing later at an advanced stage of development. I beg to protest against the rule requiring teachers to stand during school hours, and which, to my knowledge, is enforced in some populous schools of this State. Blackboard exercises and chart demonstrations, when long continued, work damage by placing the abdominal muscles on a tension, and thus inducing persistent downward pressure of the pelvic organs. There are, however, some causes of illness among teachers for which school and school-work are unjustly blamed. The long hours before and after school are very tempting to the ambitious teacher to take some extra task. Some take up an outside study, as stenography, medicine, law or book-keeping. Others become correspondents in law and other offices, having already done a day's work, and some self-sacrificing creatures are not uncommonly found doing the domestic work for an entire family, in addition to discharging the onerous duties of the school-room. Of course, the constitution breaks down under the double strain. I said the school system could not be blamed for these cases, but on second thought beg leave to recall the remark. The motive for taking extra work, particularly professional study, is the hope to get into employment that has about it some certainty of continuity, and some prospect of reward. The uncertain tenure of position in the profession of a teacher, depending as it does upon the most fickle of all institutions, a political board, cannot but be a source of anxiety and discontent.

The public school system is by all odds the largest and most potent single instrumentality in the United States. It illumines more minds; irradiates more homes with the sunshine of intelligence; prolongs more lives, and fills more untimely graves than any other one power in the land. It is the purpose of progress to eliminate that which is evil and retain that which is good. I am aware the philosopher would say: "Hands off; this is a fight for the survival of the fittest, let Nature's laws have their sway."

This is wrong; the feeble minority have their rights and it is the business of the humanitarian to respect them, and to see that the conflict is a fair one. It is particularly the business of the aforesaid humanitarian to see that the feebler combatant in the arena be not placed at a disadvantage by man-made conditions. I would strip our school system of everything that is artificial and adventitious and bring it back to natural ways and natural methods. I would see that the curriculum of study was arranged with reference to the physiological synthesis of the mind. It should be remembered that a precept is the necessary antecedent of a rational concept. The senses should, therefore, be cultivated in an easy and gradual way, but I am not dealing now so much with the psychical as the physical phase of these hygienic topics. Turning, therefore, to this side of the question, I would have the air free even to the school children. The greatest of all mental and cerebral stimulants is oxygen, and I would furnish it to them in wholesome and generous quantities. The brain work of the world is done north of the frost line, and I would, therefore, take the hint which nature and history furnish, and keep the temperature of the room within normal limits—70 degrees or less. It is preferable to generate the heat within the pupil than outside of her, and it is vastly more economical to use her lungs as a furnace, with pure air as a fuel, than the stove as a radiator and even natural gas as a combustible. It is a penny wise and pound foolish policy which prompts the saving of ground to such an extent in our cities, as to convert our temples of learning into veritable towers of Babel. But if from necessity they are built so lofty, girls of from 12 to 17 should never be called upon to climb the long flight of stairs.

The farce of stated final examinations should be done away with. That teacher is unworthy her calling who cannot, at the end of the year, indicate with accuracy and precision just which pupils are, and which are not, ready for promotion, and her dictum should be final. Published grades do more harm than good in the cases of sensitive girls of moderate capacity.

I beg leave to make another general criticism and suggest a general remedy which is of great importance. Our present school system, relying almost exclusively upon books as the media for the communication of knowledge, tends to develop the reflective centres rather than the perceptive faculties; and through the imposition of inordinate tasks, brings on an ultra-mental mood which is inimical to the physical welfare of the pupil. In the case of sensitive girls this wear and tear brings on a state which a scholarly friend of mine has aptly designated as one of "morbid subjectivity." The remedy which I would suggest is more attention to physical culture, not in our select schools and endowed colleges, but in the public schools, the university of the people.

Do not think from what I have written that I take a gloomy view either of the present or of the future. On the contrary, I am a pronounced optimist on this as every other topic, and believe that the schools of to-day are better than those of any previous day; that the health of the school children is better, and that the teachers have a finer stamina. My present complaint is but a protest against the longer continuance of certain remaining evils viewed from my particular standpoint as a specialist in medical practice. These evils are less striking than they were, and, I am happy to believe, are gradually receding before the new order of things. This new regime involves the adoption in our schools of the axiom that the successful man must first be a good animal; it involves recognition of the principle that education, to effect its true end, must develop co-ordinately the mental and physical organisms, if indeed they be capable of separate mention. Germany has gymnasiums established beside each school-house. Wellington said it was the manly sports of Eton that won the battle of Waterloo. If physical culture has had such an influence on history through the medium of men, what possibilities are not in store when the effort to influence the race is made through the more conservative organization of woman? The Eastern colleges, Wellesley, Vassar, Brown and Smith, have excellent gymnasia, and I would that our Western colleges were following the example of their Eastern competitors. But my special plea on this occasion is that our common schools, through legislative enactment, come to the rescue of pupils who are now dying, the victims of defective educational methods. This can only be done by the imitation of the German example, the establishment of facilities for physical culture at each school-house. This will, at least, turn the attention of a rising generation toward an ideal manhood and womanhood, and start them on the road to the attainment of its realization.

SEWER-AIR.

BY ELIAS H. BARTLEY, M.D.,

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Reprint from Reference Hand-book of the Medical Sciences.

Definition.—Sewer-air, as the name implies, is the air usually found in sewers. It is composed of atmospheric air containing certain gases, vapors, and micro-organisms resulting from the decomposition of sewage and excrementitious matters found therein.

In this article the definition will be extended to include the air of house drain-pipes, privy-vaults, cess-pools, and other imperfectly ventilated places containing decomposing animal and vegetable matters.

The term "sewer-gas" is frequently used as synonymous with sewer-air, but it is objectionable, from the fact that it seems to imply that sewers contain a specific gas having a definite chemical composition. Such is not the fact; on the contrary, sewer-air is a mixture of air with other gases and vapors in ever-varying proportions.

Composition.—In order to understand the composition of sewer-air, we must call to mind the composition of sewage, and how the air is contaminated by it. Sewage of cities and large towns consists of water flowing slowly through an underground conduit, and holding partly in solution and partly in suspension the excreta of men and animals, refuse from kitchens, grease, soap, the drainage from slaughter-houses, stables, factories, laundries, streets, etc. It is therefore a complex mixture of organic and mineral matters, very prone to putrefactive decomposition. This decomposition is brought about by the agency of the usual putrefactive bacteria, and with the development of carbonic dioxide (CO_2), marsh-gas (CH_4), nitrogen, ammonia, and sulphurretted hydrogen (H_2S).

Letheby found that sewage water containing 128.8 grains of organic matter per gallon, and excluded from air, evolved, for nine weeks, 1.2 cubic inch of gas per hour, or 28.8 cubic inches per day. The analysis of this gas gave, in 100 parts, by volume:

Marsh-gas, - - - -	78.83	parts.
Carbon dioxide, - - -	15.90	"
Nitrogen, - - - -	10.19	"
Sulphuretted hydrogen, - -	0.08	"

Similar experiments with sewer-mud in the Seine, by Durand-Claye, gave a gas of the following composition:

Marsh-gas, - - -	72.88	per cent.
Carbon dioxide, - -	13.30	"
Nitrogen, - - - -	4.58	"
Carbon monoxide, - -	2.54	"
Sulphurretted hydrogen, -	6.70	"

Such mixtures are never found in an ordinary sewer, as the gases are always mixed to a greater or less extent with air. The quantity of these gases to be found in the air of a sewer will depend upon the composition and the velocity of the movement of the sewage, as well as upon the ventilation of the sewer.

Dr. Letheby gives the following as the average percentage composition of the air of London sewers:

Oxygen, - - - - - -	19.51
Nitrogen, - - - - -	79.96
Carbon dioxide, - - - -	0.53
Marsh-gas, - - - - -	traces.
Ammonia, - - - - -	
Sulphuretted hydrogen, - - -	

Professor W. R. Nichols, of Boston, analyzed the air of a badly ventilated sewer in that city, with the following maximum and minimum percentages:

	MAXIMUM.	MINIMUM.
Oxygen, - - - -	29.90	20.48
Nitrogen, - - -	79.26	78.89
Carbon dioxide, - -	0.50	0.40
Sulphuretted hydrogen, -	trace.	trace.

In extreme cases the oxygen has been found as low as 13.79 per cent., the carbon dioxide as high as 3.4, and sulphuretted hydrogen as high as 2.90 per cent. Besides the gases here mentioned, sewer-air always contains bacteria and volatile organic matters, sometimes in large amount. The exact nature of these organic matters is not well understood. Some of them seem to belong to the class of bodies known as compound ammonias, or amines. When sewer-air is shaken up with a dilute solution of potassium permanganate, the organic matter undergoes oxidation at the expense of the oxygen in this salt.

We may form an idea of the amount of organic matter present by the amount of a standard permanganate solution decolorized by a measured volume of the air. Dr. Angus Smith found that the air of a cesspool destroyed two thousand eight hundred and forty times as much permanganate as the same volume of pure air. The air of a house into which sewer-air had penetrated destroyed twenty times as much permanganate solution as the same volume of pure air. These organic matters are probably much more deleterious constituents than those shown by the chemical analyses above quoted. These gases seem to possess considerable diffusive power, and will pass easily through walls and porous earthenware, or brick sewers. In this way these gases frequently find their way into the cellars of houses, especially in the vicinity of a broken sewer or improperly constructed cesspool. Fungi readily grow in such air, and articles of food, such as meat or milk, soon become tainted and decompose when exposed to it. Experience has shown that stagnant sewage gives off more gas, and is more dangerous, than that which is kept in motion. Sewer-drains which have a steep grade are, therefore, to be preferred to those having a slight grade. Where sewers are frequently flushed with water, and where there is no chance for stagnation, with a reasonably good ventilation, the danger from sever-air is reduced to a minimum.

There are very strong reasons for believing that the specific poisons, or germs, of a number of the contagious diseases may be transmitted by sewer-air. That dysentery, diarrhœa, and periodic fevers are frequently produced by sewer-emanations cannot be doubted. It is also believed that the poisons of typhoid fever, of cholera, and of yellow fever, have been transmitted from house to house by the medium of the sewers. Indeed, the evidence of such transmission amounts almost to a positive proof.

PHYSIOLOGICAL EFFECTS OF SEWER-AIR.—The effects of breathing sewer-air depend upon its composition and upon the degree of dilution. Poisoning by this gas, or mixture of gases, may be acute and rapidly fatal, or chronic, only manifesting itself after weeks or months of exposure. Acute poisoning from breathing sewer-air, or the air of cesspools, privy-vaults, etc., occasionally leads to fatal results. These effects may usually be traced to one or two causes: 1. The air may be deoxidized, or deficient in oxygen, and contain excess of carbon dioxide; 2. It may contain a poisonous quantity of sulphuretted hydrogen (H_2S).

According to Thénard, asphyxia of persons breathing sewer-air is often due to breathing an air containing a deficient supply of oxygen, rather than an excess of carbon dioxide. Experiment has repeatedly shown that an animal can endure for hours a greater proportion of carbon dioxide than is ever found in ordinary sewer-air, provided that the proportion of oxygen is kept up to the normal amount, or is in excess of the normal. The poisonous properties of carbon dioxide are very slight when the oxygen of the air is increased above the normal proportion. Thus, an animal may live for hours in an atmosphere composed of forty per cent. of oxygen, twenty per cent. of carbon dioxide, and forty per cent of nitrogen. An addition of five per cent. of carbon dioxide to normal air may be endured for some time without fatal poisoning. As sewer-air seldom contains more than four per cent., it is evident that unless the oxygen be reduced below the normal the mixture could not prove rapidly fatal from carbon-dioxide poisoning. A case of asphyxia from breathing sewer-air, then, is oftener due to a deficiency of oxygen than to an accumulation of carbon dioxide; or, perhaps, to the combined effect of this with an excess of carbon dioxide. In such cases resuscitation is likely to prove successful, if pure air can be supplied in time.

In certain cases sewer-air may contain enough sulphuretted hydrogen (H_2S) to become poisonous. A number of cases of fatal poisoning by sewer-air containing sulphuretted hydrogen are on record. Woodman and Tidy* mention twelve cases of sewer-gas poisoning. They seem to attribute the poisoning to H_2S in most, if not all, of these cases. It must be admitted that it is only in exceptional cases that this gas accumulates in sewers in sufficient quantity to give rise to acute poisoning.

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* Forensic Medicine and Toxicology, 1877, p. 494.

A discharge of a considerable quantity of mineral acid into a collection of sewage-matter containing an abundance of sulphides may cause an evolution of H_2S, which, in a poorly ventilated and flushed sewer, may accumulate in fatal quantity. A liquid charged with sulphuretted hydrogen or ammonium sulphydrate, like gas-liquor, may be discharged into a sewer so as to temporarily poison the air. By far the largest number of these cases of acute poisoning occur to workmen engaged in handling night-soil, the contents of privy-vaults and cesspools, or the mud of sewers. In such cases the pent-up gases may escape in poisonous quantities, and overcome the workman before it has time to diffuse itself. Sulphuretted hydrogen is a deadly poison, even when mixed with large quantities of air.

The results of experiments upon animals show that:*

1	part of H_2S in	1,500	of air killed	small birds	Parent du Chatelet.
1	" "	290	" "	rabbits	
1	" "	250	" "	horses	
1	" "	1,800	" "	birds	Dr. Barker.
1	" "	210	" "	dogs	
1	" "	2,000	" "	birds	Dr. Letheby.
1	" "	200	" "	dogs	

Dr. Letheby considers that one per cent. of the gas in air would destroy human life. As $\frac{1}{100}$ per cent. (1 part in 10,000 of air) can be detected by the odor of rotten eggs which it imparts, there can be little danger of being acutely poisoned by it unawares.

It is more than probable that the fatal effects above referred to are as largely due to deoxygenated air as to the poisonous action of the sulphuretted hydrogen or of the ammonium sulphide.

TREATMENT OF ACUTE POISONING BY SEWER-AIR.—The treatment of this form of poisoning may conveniently be divided into preventive and remedial.

The prevention of acute poisoning by the air of sewers, cesspools, etc., is very simple. In sewers thorough flushing and ventilation is all that is needed. In cesspools and vaults it is important to stir their contents before emptying, in order to allow the greater part of the gas to escape. If the generation of hydrogen sulphide is rapid, it may be necessary to throw down a little chloride of lime, a day or two before going into the vault, or to generate chlorine in the vault by means of chloride of lime and dilute acid. The test of lowering a candle into such places is not always a safe test to depend upon. The remedial treatment of asphyxia from sewer-air or cesspool-air consists in the admission of fresh air, and the use of cold affusions. Warm brandy or whiskey and water may be given freely, to sustain the heart.

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* Woodman and Tidy, 1877, p. 492.

Dr. Eskbridge has used, with success, intravenous injections of aqua ammoniæ fortior in a case of acute poisoning. He proposes to use this solution, diluted with two parts of water, at a temperature of 110° F.

Commonly, the simple removal of the person into pure air, if done without delay, is sufficient to restore him. Woodman and Tidy recommend the breathing of air containing a trace of chlorine, formed by putting chloride of lime in a bottle. The object of this treatment is to decompose the hydrogen sulphide that may be in the residual air of the lungs or, possibly, in the blood.

SYMPTOMS AND POST-MORTEM APPEARANCES. — The symptoms of acute poisoning by sewer-air, the air of cesspools, or the gases evolved by night-soil, are usually those of asphyxia, or of poisoning by hydrogen sulphide. The surroundings of the person at the time of the accident can usually be determined, and thus the cause of the symptoms, or death, inferred. The first effect will probably be nausea, faintness, or dizziness; cold, clammy skin; frequent pulse, and irregular or jerky respiration.

Later, or if the sulphuretted hydrogen be more abundant, the person loses the power of motion and becomes insensible. His lips become livid, and a bloody, frothy mucus may exude from the mouth or nose. The pulse becomes weak, rapid, and irregular. The respirations now become rapid, laborious, and irregular. The voluntary muscles are relaxed, with occasional twitchings, or even tetanic convulsions. Death may occur suddenly, or the patient may slowly regain consciousness on exposure to pure air.

The post-mortem appearances are usually those observed after poisoning by hydrogen sulphide. The blood will everywhere be found to be of a very dark color, sometimes almost black, and fluid. The right side of the heart is usually found filled with blood. The body emits an offensive fecal odor, and rapidly undergoes putrefaction. When the cause of death is sulphuretted hydrogen, the mucous membrane of the bronchial tubes is smeared with a dirty-brown mucus, easily rubbed off. This appearance is very characteristic, and may serve to distinguish between suffocation by deoxygenized air and sulphuretted-hydrogen poisoning.

CHRONIC POISONING BY SEWER-AIR, AND THE DISEASES PRODUCED BY IT.—This is a subject upon which a great deal of attention has been spent, without entirely satisfactory results. Opinions differ as to the effects of sewer-air upon the human economy, when breathed for a considerable time in a highly diluted condition. While some physicians believe that it is not deleterious to health under these conditions, others claim that it is a cause of many cases of serious illness, and a frequent carrier of such diseases as typhoid fever, dysentery, cholera, yellow fever, diphtheria, scarlet fever, measles, etc. While it is not easy to obtain reliable data upon this point, the weight of evidence, as well as reason, seems to declare that there is some connection between sewer-emanations and some of the diseases mentioned. It would carry us to far for the limits of this article to discuss at length the evidence that must lead us to this conclusion.

It is certain that there are well-established observations which seem to prove that sewer-air, even when largely diluted, produces a very deleterious effect upon the health of persons who breathe it for a considerable time. The teachings of writers on toxicology, the clinical experience of hundreds of physicians in our large cities, the experience of sanitarians and of sanitary engineers, all lend weight to this opinion. It is equally certain that these effects cannot be due alone to the gases which have been described as entering into its chemical composition.

Mixtures of air with carbon dioxide, marsh-gas, sulphuretted hydrogen, and ammonium sulphydrate, when prepared in the laboratory, in the arts, or in metallurgical operations, have never been known to produce typhoid fever, dysentery, malaria, or any other of these specific diseases. Indeed these gases, with the exception of H_2S, are known to be harmless when highly diluted. Sulphuretted hydrogen has lately been recommended and used by inhalation in the treatment of phthisis. The author has so used it, with no apparent ill effect.

Some other cause for the well-known effects of sewer-air must be found than is revealed by the analyses above quoted. This must be in the organic matters or micro-organisms that have been described as present in sewer-air. The air of sewers has been found to contain large quantities of bacteria. This may be easily shown by exposing in a sewer a glass slide moistened with glycerine, and then submitting the slide to microscopical examination.

Professor Frankland* has shown that few solid or liquid particles are evolved from sewage unless it be agitated. He found that the ordinary flow of the sewer-water did not scatter any particles into the air; but when it began to ferment and evolve gases, the bursting of these bubbles sent small portions of the liquid into the air. From this fact he argues that sewage pollutes the air with dangerous germs only when it is giving off bubbles of gas. If we take proper measures to carry off the sewage before fermentation takes place, the danger will be reduced to a minimum, or entirely obliterated. If, as above stated, the putrefactive bacteria are thus disseminated through sewer-air, there is no known reason why pathogenic microbes, when present, should not be scattered in the same way.

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* Proc. Royal Soc., 1877.

A case in which sewers probably played a part in the spread of cholera, is given by Dr. Parkes, in his report to the officer of the Privy Council on the cholera in Southampton, in 1866. There is good evidence that the contagious principles of yellow fever and typhoid fever have been disseminated by sewer-air.

In the city of Brooklyn, N. Y., in 1885, there were a large number of cases of typhoid fever in two pretty well-defined localities, both situated on high ground. After a thorough investigation of the cause of the localization of the cases, the conclusion was reached that the sewers were infected by the discharges of a few imported cases; that the poison was disseminated by the sewer-air tending always toward high levels, and gained an entrance into houses in the immediate vicinity through defects in the plumbing. In a very large number of the houses where cases occurred, such defects were actually found on inspection.

Upon this subject Dr. John Simon, Chief Medical Officer to the Privy Council of Great Britain, in his essay on "Filth Diseases," while speaking of morbific ferments, or contagia, says: "The ferments, so far as we know them, show no power of active diffusion in dry air; but, as moisture is their normal medium, currents of humid air (as from sewers and drains) can doubtless lift them in their full effectiveness, and if into houses or confined exterior spaces, then with their chief chances of remaining effective."

Dr. Parkes* says: "The air of sewers passing into houses aggravates most decidedly the severity of all exanthemata—erysipelas, hospital gangrene, and puerperal fever (Rigby); and it has probaby an injurious effect upon all diseases." "Two special diseases have been supposed to arise from the air of sewer and fecal emanations, viz., *diarrhœa* and *typhoid* (enteric) *fever*." That typhoid fever may, and frequently does, arise from sewer-emanations is a doctrine certainly well supported by facts. The writer's experience has furnished examples of this fever that were apparently contracted from sewer-air. There are several cases on record where typhoid fever has constantly recurred in houses exposed to sewer-emanations, and in which proper attention to sewer-defects has completely prevented further outbreaks.

Water has been known to become contaminated by sewer-gases, and afterward to produce typhoid fever in those who drank it. Dr. F. de Chaumont† cites a case where a cistern was thus poisoned by sewer-air passing into it from the sewer through the overflow-pipe. An analysis of this water showed it to contain a considerable excess of "albuminoid ammonia," derived from the absorbed gases. A similar case is recorded by Dr. Robert King, in the *Medical Times and Gazette* for August 2, 1879. These, and other similar cases, add an interest to the question of overflow-pipes to wells and cisterns, and of the efficacy of water-traps, not usually appreciated.

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* Practical Hygiene, sixth edition, vol. i., p. 148. Wm. Wood & Co.

† "Lectures on State Medicine," p. 77.

Mr. William Budd cites instances in which those members of a particular household, who used one closet into which the dejecta of a typhoid patient were thrown, contracted the disease, while other members of the same household, who were in close personal contact with the sick person, escaped.

From what is here said, it will be understood that the results of breathing sewer-air are not always the same. The effects will depend upon the quality much more than upon the quantity of the air breathed. A small amount, at one time, may cause a fatal contagious malady, and at another time a much larger amount may produce only a slight malaise. A small quantity laden with the germs of a specific disease is more dangerous than a large quantity of gas from an uninfected sewer.

Symptoms of Chronic Sewer-Air Poisoning.—As already remarked, the symptoms of sewer-air poisoning are usually insidious in their development, and by no means always constant. I am disposed to believe that the effects may even remain unnoticed for months, as long as the sewer is not infected with harmful germs, and may develop with certainty whenever such infection does occur.

In adults the symptoms, when no specific disease-germs are at work, are malaise, headache, loss of appetite, with even dyspeptic symptoms, drowsiness, and slight feverishness. There is a marked tendency to anæmia and general debility. These symptoms are frequently grouped under the name of "malaria." In children, to these symptoms may be added a smooth or glazed, broad, flabby tongue, with a marked tendency to digestive trouble, as vomiting, diarrhœa, dysentery, and attacks of gastric catarrh and catarrhal tonsillitis.

The tendency of sewer-air poisoning, then, is to derange the organs of primary assimilation, rather than the lungs; as, for example, gastric catarrh, duodenitis, hepatitis, splenitis, diarrhœa, enteritis, and colitis. Besides these effects, the debilitating influences of the polluted air render the persons so effected an easy prey to any intercurrent malady.

In times of epidemic diseases these are apt to assume a severe or malignant type. There is less tendency to periodicity, and more variability in sewer-air poisoning than in marsh-miasm. The effects seem to depend largely upon the bodily vigor and activity, at the time of exposure, and are therefore greater in night exposure than during active working hours. Hence workman engaged in ventilated sewers and vaults seldom suffer any particular harm. Numerous inquiries upon this subject have been made, and, although there has been some difference of opinion, the weight of evidence would seem to indicate that sewer-workmen suffer no more from disease than do other men, aside from a few accidental cases of asphyxia. Those who auffer most from sewer-gas poisoning, or sewer-malaria, are women and children who spend most of their time in the house, especially in poorly ventilated apartments. As might be expected, an exposure to sewer-air during sleep is more dangerous than during waking hours, and during a period of active exercise.

While we admit the injurious nature of air contaminated with sewer-air, we must admit that we occasionally meet with cases where persons have lived in houses for years, where traps were unknown, and have suffered from no apparent bad effects. These facts have led some sanitarians to deny the relation of sewer-air to any form of disease. It will not be claimed that the specific germs of disease are always present in any given sewer, especially if it is well ventilated, and if the sewage is constantly in motion. The air of a badly ventilated and stagnant sewer is always to be regarded as more dangerous than that of one where these conditions do not prevail. It has repeatedly been shown that the conditions under which the various microzymes grow, have a great influence upon their virulence in producing disease. It is quite possible that the ordinary putrefactive bacteria, when germinating in pent-up sewage, may be the cause of the catarrhal sore throats and diarrhœas produced by sewer-air. The virulence of many of the microzymes of the specific diseases, when present in sewers, is increased by germination in closely confined and stagnant sewage. It will be admitted that these disease-germs are not always present in sewers, and under favorable conditions, such as rapid flow and free ventilation, would do no damage when they were present. The importance of securing these favorable conditions in sewers is therefore very apparent.

Treatment.—The treatment of chronic sewer-gas poisoning is partially remedial and partially preventive. In the former, fresh air is of first importance. Pure out-door air acts as a tonic, and, at the same time, a diluent and disinfectant of the sewer-air. As the tendency of sewer-air, aside from the specific disease-germs, is to produce a lowered vitality and anæmia, quinine, arsenic, salicin, iron, and the mineral acids are indicated. A change of location is often of the greatest benefit. It should be remembered that the effects of sewer-air are frequently seen only in their aggravation of other maladies. Thus, a simple sore throat may, under its influence, assume a very serious and aggravated form. A simple gastro-intestinal catarrh, in children exposed to sewer-air, is often found to be most intractable, until a change of location is secured. The author has seen cases of summer diarrhœa very greatly benefited, and even cured, by a removal for the distance of a few blocks in the city. The effects of a removal to the country are too well known to demand discussion. Many of the cases of infantile cholera are undoubtedly due to the combined effect of a polluted air and high temperature. Fresh air is curative in a large number of these cases.

The effect is the same whether the fermenting sewage is contained in sewers or has soaked into the ground about the house. Both may pollute the air with the same gases, and may produce like effects. When furnace-fires are used in the house, the gases from a sewage-soaked soil may be drawn into the cellar and thence into the rooms above, giving rise to all the injurious effects of sewer-air.

The prevention of sewer-air poisoning is of more importance than is its treatment. The principal requisites for a system of sewers are, free ventilation of all drain or waste-pipes, and sufficient grade or inclination in outlet-pipes to secure a somewhat rapid current of the sewage. To secure thorough ventilation of the pipes in the house, it is now customary and proper to carry a ventilating pipe, from the sewer side of all traps, to a larger pipe leading to and above the roof of the house; also, to carry a pipe from the house side of the trap, between the house and street-main, to the open air. This last pipe allows the air to enter the house-system, whence it finds its way, in a constant current, through the pipes and out of the ventilating pipe above the roof. By this arrangement there can be no stagnant air in the pipes of the house, and they are constantly purified by a current of out-door air. When this is secured, and there is no leakage in the pipes, we need fear no trouble from sewer-air.

DETECTION OF SEWER-AIR.—The detection of sewer-air is not always an easy matter. The chemical tests depend upon the detection of sulphuretted hydrogen (H_2S) or ammonium sulphydrate. If a piece of filter-paper be dipped in a solution of lead acetate, and be exposed to an atmosphere containing either of these substances, it turns dark-brown, and finally black. A paper dipped in a solution of nitro-prusside of sodium assumes a crimson, and tumeric paper a brown color with ammonium sulphydrate. White-lead paint is darkened by both the above compounds, while zinc white is not changed in color.

The peculiar odor of H_2S may be easily detected, when the proportion reaches 1 part in 10,000 of air. On closing a room tightly for some hours, and then going into it from the open air, a musty or oppressive odor is detected when sewer-air emanations from decomposing animal matters have found their way into it. If any circumstance should lead to the suspicion that sewer-gas is entering a room or house, it would be best to test the drain-pipes by the "smoke test" or the "oil-of-peppermint test."

A suspected joint in a sewer or drain-pipe may be tested by wrapping it with a single layer of white muslin moistened with a solution of acetate of lead. As the gas escapes through the meshes of the cloth, it will be blackened by the sulphur-compounds.

As above stated, all these tests may fail in certain cases, when the amount of sewer-air is small in comparison with the air with which it is mixed. It is therefore to be recommended that the plumbing of houses be examined by an expert at least once a year.

THE TREATMENT OF COLDS AND BRONCHITIS.

When the cold is a widespread, general one, involving the whole body in a condition which, according to our own thinking, is a form of subacute rheumatism, with aching pains and general wretchedness, a free jaborandi sweat, followed by a few full doses of quinine, will often liberate the sufferer at once, especially if the sweats be aided by a mercurial or other purgation. Coryza has long been a bugbear to the family doctor, but, thanks to bismuth and cocaine, we are now enabled to view it without tremor. We learned also quite recently a curious lesson from an old barber: Happening to be in the shop when suffering from a violent cold in the head, the grizzled remnant of a colored regiment, now Junior Vice-Commander (Brigadier-General) of the Grand Army of the Republic, offered at once to cure us by manipulation. After much banter and the agreement of no cure, no pay, the editorial head was well manipulated by the mysterious procedure of dry shampooing, and the result certainly was that the coryza disappeared. Bismuth and cocaine injections into the nose, we think, almost invariably, however, bring relief without calling in the assistance of the manipulator.

A mixture which we have often used with great advantage, and which is readily prepared in the household without the intervention of the apothecary, is made by adding a dessertspoonful each of whiskey, paregoric, and glycerine, and thirty minims of chloroform ; the whole to be well shaken, and to be taken in teaspoonful doses *pro re nata.* In our earliest medical teaching was inculcated a profound faith in the value of hydrocyanic acid and wild cherry bark as a means of quieting a cough. Wild cherry bark preparations contain scarcely more than a trace of the prussic acid, and certainly are useless.

The early depressing expectorants of our boyhood and of the text-books have in our practice been replaced very largely by the citrate of potassium. If tartar emetic or ipecacuanha be given in such doses as to produce prolonged nausea and vomiting, it will undoubtedly usually bring about free secretion in the early stages of acute bronchitis; but the method is so disagreeable and so exhausting that it is only to be tolerated when the patient is a robust man, to whom time is so important that it is essential that he be cured in the most speedy manner possible, even at great bodily inconvenience and some risk. Unless the older depressant expectorants be given in nauseating doses they have comparatively little power, and we think that any of our readers who will use the following cough-mixture in the first stages of bronchitis will never depart from its employment unless some new remedy of greater power be discovered. The dose of it, of course, must be varied according to the strength and peculiarities of the individual patient. That which we indicate is for a robust man:

℞	Potass. citrat., - - - - -	℥i.
	Suc limonis, - - - - -	f. ℥iss.
	Syr. ipecac, - - - - -	f. ℥ss.
	Tr. opii camph., - - - -	f. ʒiii.
	Syrupi, q. s. ad - - - -	f. ℥iii.

S.—Dessertspoonful every two hours.

Of the older stimulating expectorants, the only ones which still retain our confidence are the muriate of ammonium and the syrup of garlic. The ammonia salt does not seem to have a very peculiar influence upon the respiratory mucous membrane. It is valuable in acute bronchitis when free secretion has once been established, but in some cases it seems also to have the power of bringing about secretion. In the rare instances in which the citrate of potassium mixture fails, we habitually resort to the muriate of ammonium, and have often seen very good results.—*Therapeutic Gazette, April, 1888.*

ANOMALIES IN MEDICAL LIFE.

The following pithy little paragraph is extracted from the editorial columns of the *Gaillard's Medical Journal*, for April, and bears the title, "A Strange Anomaly:"

"The physician is the only man whose life-duty calls upon him to work directly against his own interests. He must study and work to bring about a state of affairs which tends directly to relieve him of his occupation. Every year the physician realizes that it is more scientific to keep a community healthy than to cure it of such ills as it is obliged to suffer from when no regard has been paid to sanitation. As he advances in science he places himself more and more in the position of a merchant who is using every effort to make his wares useless. Fortunately, there is not much prospect of his being entirely successful in this endeavor at present, but it is easy to see that the medicine of the future will be progressively preventive."

There are contrarieties in every walk of human life, but a stranger one than that above described it will be difficult to find. The inevitable tendency of the vast volume of sanitary work, done early and late, by every modern-minded physician is the abridgment of his field of labor and his livelihood, because it manifestly reduces sickness and the medical demands of the community. The more conscientious and thorough a man is in the discharge of the sanitary phase of his self-appointed duty, the more absolutely does he come in conflict with the material interests of his brethren and himself. Carried to its legitimate conclusion, we behold the singular spectacle of a body of specially trained men seeking, by its own unselfish exertions, to wipe itself out of existence. But let us not cross the bridge untimely: it will not come in our day. We are minded to give a brief illustration of the above, taken from the medical history of Queens County: It is told of old Dr. Isaac Ledyard, a notable character who flourished in Newtown a century or so ago, when there was a frequent passing of the social cup and much drinking of toasts; it is told of him that when a sentiment or toast would be demanded of him, it was his wont to lift his glass and pledge the company in this guise: "Here, my friends, is your very good health, and that is most consumedly against me." If the good old Doctor had survived until the days when sanitary science was discovered, he would have been found acting in like manner, as he phrased his toasts—at odds with his material interests.

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A PERIL OF SUMMER TRAVEL.

The recently reported attack of fever sustained by the Duke of Edinburgh, from drinking impure water at a foreign station, makes it timely to refer to the dangers that lurk in many drinking waters, especially those drawn from surface wells. In many summer resorts in this country the sources of supply are inadequately protected from pollution; while in foreign cities it is the rule, almost, to find an impure water. Even the "syphons" of sparkling water in a large

European city have been known to be vilely tainted with sewage. Much of the sickness that suddenly overtakes the tourists who visit Italy and the Nile arises from the water they drink, many of them finding disease and death while in the pursuit of health and pleasure. When the Prince of Wales set out for India, his physicians cautioned him to lay in a supply of natural mineral water and to abstain from the questionable supplies at the localities visited. By pursuing this course, he and many others have avoided some of the dangers of fever and dysentery while journeying in strange countries. Where this cannot well be done, the next best precaution is the boiling of the water to be used at table and in the preparation of food. When the flat taste of boiled water is objectionable, it can be qualified by the addition of the juice of fresh lemons or some other acceptable acid.

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ANOTHER HONORED TRADITION THREATENED.—The origin of hospitals is commonly taught and believed to be the special fruit of Christianity, but here comes an iconoclast who would have us know that the first hospitals for diseased men and animals were built by the Buddhists of India, and that asylums for the insane were originated by the Mohammedans. In the fourth century B. C., an edict by the Hindoo ruler Asoka, commanded the establishment of hospitals throughout his realm. And Prescott, in his *Conquest of Mexico*, says that the principal cities of ancient Mexico contained hospitals for the cure of the sick and for permanent refuge for disabled soldiers.

HYDROPHOBIA.—The Massachusetts State Board of Health has published a circular for general distribution detailing the symptoms and treatment of animals affected by rabies. In it the statement is made that the total number of human deaths registered in that State by hydrophobia, in the past forty-six years, has been but seventy-two.

At Fürth, where the manufacture of looking-glasses is extensively carried on, Professor Kussmaul did not find an instance of a worker in mercury contracting syphilis while under the mercurial influence.

The editor of the *British Medical Journal*, May 26, p. 1130, makes mention of the International Congress on Anthropology as occurring at "Columbia College, Brooklyn, U. S. A."

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ORIGINAL ARTICLES.

PAIN, WITH SPECIAL REFERENCE TO ITS DENTAL RELATIONS.

BY WM. M. THALLON, M.D.

Read before the Brooklyn Dental Society, May 28, 1888.

MR. PRESIDENT AND GENTLEMEN :—Some months ago, when sitting in the operating-chair of your Chairman of the Committee on Subjects, he asked me if I would not read a paper before the Brooklyn Dental Society. In the helpless condition in which I then was, with literally a gag in my mouth, robbing me of the prerogative of free speech, and under the shadow of a formidable mallet, I somewhat timorously signified an assent. Under those circumstances I know of few men who would have had the moral and physical courage to have resisted such an appeal. When in the course of his further practices, he asked me what my subject would be, I promptly replied by mentioning the thing then most vivid in my mind : Facial Neuralgia.

I hardly realized my rashness and what I had undertaken, until I received your printed bulletin of subjects. But it has seemed to me on further thought that we might perhaps spend an hour profitably together in comparing notes about that borderland of facts and problems, which you touch on the one side as dentists and I on the other as physician. And I trust you will be lenient with me in your judgments if I go astray in my talk, and I pray you to remember that we doctors labor under great disadvantages compared with you dentists, contrasting the width and vagueness of our territory of research with the precision and accuracy of yours. I have again and again envied the exquisite dexterity and the certainty of adapting means to ends which I have seen exhibited by members of your profession, and vainly longed for the same in my own. But on the other hand, I think it may justly be urged that the dentists have not contributed as much to the general stock of knowledge, especially to the solution of disputed questions of pathology, such as the relation of micro-organisms to disease, as their unrivaled opportunities for observation would allow.

I shall therefore not hesitate, Mr. President, to somewhat dogmatically present my views on certain subjects, but I ask you to believe it is mainly because I hope the gentlemen present will honor them by frank and full discussion.

I shall also ask permission to change the subject of my remarks from the announced title to one of a little wider scope, namely, Pain, with special reference to its dental relations.

I presume the symptom of pain is the one for which the overwhelming number of your patients, as the majority of ours, apply to us for relief. And yet common as this sensation is both in ourselves and in others, it is very remarkable how little settled opinion is, as to its nature. If you have never had occasion to try and put into the form of a definition the idea of pain, and proceed to consult the authorities, you will be surprised that so many different views could be held of what at first seems so common and obvious as to be beyond dispute. As you proceed in your inquiries, the question instead of becoming simpler apparently becomes more complex, for as you think of the different forms of pain, and contrast, for instance, that of an inflamed rheumatic joint, with its definite structural changes and well-marked consititutional symptoms like fever, with an idiopathic neuralgia, pure and simple, often lacking in any outward manifestation other than the pain itself, you wonder if the pains resulting are not as different as the diseases producing them. But the common consciousness of mankind which has given the same name to the sensation produced, whether by an inflamed bowel or a carious tooth, is sure to be right in believing that there is essentially the same substratum in each. Now what is the nature of that substratum? It is evident that whatever else it is, pain is a disagreeable sensation, and the word sensation further obliges us to remember that it involves a central nervous system (in its simplest type a single cell), capable of feeling impulses, conveyed to it from without, or else generated within itself. Now, it is very evident that pain must consist either in some change in the nature of the impulses sent to our central cell, or else in some change in the condition of the receiving centre. So eminent an authority as Prof. Erb defines pain simply as an increase in the ordinary sensory stimulus, a heightening more or less intense of ordinary sensation. On the other hand, Anstie defines pain as a perturbation in the nervous system, especially of the central cells, involving a lowering of function, a diminution of ordinary sensation. It is very evident that both of these great authorities cannot be exclusively right, and I propose to see what light we could get on this subject from the abundant clinical evidence you have.

This question is no mere quibble about words or definitions, but it is one of the utmost practical importance in its relation to treatment. According as we settle in our minds whether a given case of pain is an exaggeration or a lessening of the ordinary physiological condition, our treatment will logically be either narcotic or stimulant.

Leaving for the present the question as to the nature of pain, let us examine some of the modes in which it expresses itself; and as far as practicable I will limit myself to the various pains about the head, for all the varieties are there manifested.

The first point which strikes every observing man is the difference of individuals in their susceptibility to pain. It is not merely or even mainly a question of the amount of courage of the patient in bearing pain, but it is far more a question of inherited or acquired sensitiveness. The same amount of injury, as nearly as we can judge, in two differently organized individuals will produce extremely differing degrees of pain. In general it may be stated that the unduly susceptible individual has either inherited a weak nervous constitution as regards pain, or else that some depressing agency has lowered his power of resistance. When I speak of a weak nervous constitution as regards pain, I do not not mean that it need be a generally weak physique. Perhaps a more happy word would be unstable. You remember the physicists talk of bodies being in stable equilibrium when after a disturbance they tend to return to their bottom, or centre of gravity; while unstable equilibrium is that state where a little shove off the centre, results in a big tumble. Now, the people who are markedly susceptible to pain, who have recurrences of it, may be said to have a nervous system in a state of unstable equilibrium. In other respects these same individuals may be splendid types of muscular or mental development.

The same condition holds good with pain's first cousin, muscular spasm. The analogue to the sensory crisis of attacks of neuralgia is seen in the muscular convulsions of attacks of epilepsy. And yet some of the greatest men of the world's history in mental vigor have been epileptics, notably Napoleon Buonaparte and Julius Cæsar. Although at first we may not be able to see any outward manifestation of such attacks of pain as I have spoken of, if they recur sufficiently often they are sure to leave their traces behind.

If we prosecute our inquiries in the other direction, to find what has predisposed our patient to recurrences of pain, we find in a large number of cases that his immediate progenitors have suffered from similar or allied manifestations. By allied manifestations I mean such other nervous diseases as epilepsy or chorea (St. Vitus' dance), or insanity. Moreover, there is one predisposing cause that I believe to have quite peculiar efficacy, and that is the tendency to phthisis. Again and again I have verified the truth that where a member of a tubercular family escapes consumption, he is extraordinarily liable to develop one of the graver neuroses, preferably recurrent attacks of pain.

Now, the first point we may consider settled, as to the mode in which pain expresses itself is in an inherited susceptibility, a lessened power of resistance, and this can only reside in the central nervous system.

But, as we have already said, the lessened power of resistance may be acquired, it need not be inherited.

Without stopping to dwell very long on this part of our subject, it will suffice to enumerate one or two of the principal efficient agents. And the first and far the most important of these is malnutrition of the nerve tissues, whether accompanied by the signs of anæmia and general constitutional malnutrition or not, the main cause being our civilization, with its excessive nervous wear and tear, no less in the educational period than in the intense competition of mature life. No more striking verification of this fact is needed than the results obtained in the relief of pain by physiological rest, by systematic feeding, especially of certain kinds of food, particularly fatty food. It is the general rule that in these cases there is either an indisposition to take sufficient food, or else that certain necessary ingredients are omitted owing to the patient's repugnance.

In the familiar example of sick-headache, or migraine, the patient invariably ascribes his condition to a disordered stomach, and scrupulously avoids such foods as eggs and milk and fat, which he will tell you always make him bilious. It is the hardest thing in the world to convince him that he has put the cart before the horse, and that the real fact is that the nervous trouble, the neurosis of the ophthalmic division of the fifth, is the cause and not the effect of the gastric disturbance. I am convinced that much of the suffering in the dental branches of the fifth nerve can similarly be traced to the nervous malnutrition of insufficient food, and, in addition, the local condition of the teeth is pathologically influenced by their not getting their proper physiological stimulus in the quantity or character of the food to be chewed.

Of all the means at our command in combating the neuralgic condition, the regulating and increase in the quantity of rest and of the food supply should stand first. These facts have been known and recognized for a long time; but it is due to an American, Dr. Weir Mitchell, of Philadelphia, to have intelligently systematized their use. The principles of his treatment of nervous prostration, spinal irritation, and allied disorders, in which pain is often a prominent symptom, consists in a system of rest and forced feeding by which a larger quantity of nutriment is gotten into the system, and the waste eliminated by means of artificial exercise, by massage. It is evident that in this process the increased food absorbed into the blood goes indifferently to nourish all the tissues; but inasmuch as the muscles are not the seat of the trouble, if left alone unexercised, they would become diseased under the very stuffing process. That is where the kneading and shampooing, and movements supplied from without, are so valuable; the muscles get their healthy action without drawing on the forces of the enfeebled nervous system to set the process going. And so the nervous system has a chance to lie idle and grow fat. Similar remarkable results have been obtained in another disease whose hereditary relations to pain I have spoken of, namely consumption, by a process of forced feeding. The recent results obtained, more especially in France, by stuffing phthisical subjects, have constituted by far the greatest advance in the treatment of this disease in recent years. But in these cases the massage is entirely inapplicable because the waste of tissue is already too great. The lessons taught by the treatment of these two classes of diseases are invaluable in combating the more inveterate forms of pain.

The next acquired condition to which I would invite your attention, which may act as a cause of pain, is the presence of certain poisonous compounds in the blood or system. These are more especially the poisons of malaria, of syphilis, of gout and rheumatism, of alcohol, of certain drugs, and lastly of certain metallic poisons, as mercury, phosphorus, lead and arsenic.

Although this group includes a tolerable number of members all together, it is less important than either the preceding division of non-toxic malnutrition of the nervous tissues, or of our first class, in which heredity plays the main role.

Still the toxic cases are sufficiently common. What we have already said as to treatment here holds good, but we must superadd the means of combating the particular poison.

In the malarial cases the pain is often entirely relieved by quinine or one of its substitutes; on this all are agreed, whether homeopaths or allopaths, or outside of any regular path. It is quite curious how the malarial neuralgias preferably locate in the first division of the fifth. But one word of caution, the mere fact of recurrence or periodicity, more or less regular, does not suffice to establish the diagnosis of malaria, for all neuralgias are apt to be more or less periodic. You must get definite symptoms of chill or fever before you can be sure. Once sure, the treatment is plain: efficient doses of the antiperiodic.

When we come to the syphilitic cases we enter more debateable territory. The pains about the head, especially the teeth, are sometimes not due to the disease, but to the means taken to combat it. I do not intend here to take up the question of the treatment of the secondary stage, except to enter my protest as to the harm done, especially to the teeth, by routine overdosing with mercury. Fortunately this abuse of a most valuable remedy is much lessening. In the third stage of syphilis you sometimes get most remarkable pain manifestations, and I had one in my practice that I cannot refrain from quoting.

A gentleman, aged between 40 and 45, had suffered for years from recurrent attacks of pain of great severity. When I saw him the pain, although more or less present constantly, had very marked exacerbations every afternoon. It was located in the great occipital nerves, especially on right side. Had formerly had considerable pain in distribution of right inferior dental nerve. His occupation was sedentary and involved considerable mental application. He stated on questioning that some eighteen years before he contracted syphilis. From this he believed himself cured. He had subsequently married, but had no children. Having suffered for six or eight years from these attacks of pain at varying intervals, he had consulted numerous physicians with only temporary benefit. He was very despondent; his sufferings were very intense, and only the most powerful anodynes gave relief. After some investigation, I made up my mind that the syphilitic dyscrasia lay at the bottom of his suffering. I therefore began specific treatment with iodide of potash. Prof. Seguin, who saw him in consultation, concurred in both diagnosis and the line of treatment. He suggested pushing the iodide until its therapeutic limit was reached. This was done; but it was not until the enormous dose of one-half ounce thrice daily was reached that the pain yielded. During one week this patient took over one pound of iodide of potash.

A course of mercury in small doses completed the cure. Two years have now elapsed, and the patient has had no recurrence of pain.

Gout and rheumatism were formerly ascribed a much more important role in the production cf pain than they now occupy. Leaving out of account the acute manifestations of these diseases, their influence is slight as predisposing causes in the production at least of facial pain. There is perhaps one disease of the dental apparatus to which I shall allude later on, in which gout may act as an efficient cause.

On the other hand, the class of pains due to the action of the chronic abuse of certain therapeutic agents is unhappily an increasing one; I allude to alcohol, opium, cocaine, chloral and other drugs, originally taken for the relief of pain, which induce a pernicious habit in their unfortunate victims, of which pain is one of the main expressions. It is an undoubted fact that this class of sufferers is on the increase. Much of this tendency is due to the excessive wear and tear and the unhealthy competition of our modern civilization. It has always been the refuge of the weak, the attempt to escape from the moral evils of our lot by means of something that will temporarily dull our consciousness of the trials we have gone through and the apparently greater trials that lie ahead of us. The moment the competition for existence and for wealth becomes keener, the greater will be the temptation of the unsuccessful or depraved to seek oblivion for their failure in some narcotic, which will for the time being quiet their disappointed consciousness. When in addition you have an inherited weakness on the part of your patient in his susceptibility to pain, or in a condition of pain actually existing, can you wonder that so many fall by the way? It seems to me that a terrible responsibility lies upon us all, especially upon us physicians, lest by our treatment we encourage this tendency. Nor do I think that as a profession we can be altogether acquitted of carelessness, to put it mildly, in this regard. It is so much easier to relieve the symptom pain, when called to a sufferer, by a dose of morphine, and then when the next attack comes on to repeat it, than to analyze the complex group of phenomena on which that pain depends. You will perceive that the question with which we started as to the nature of pain is of vital importance in this regard.

The last group of constitutional agents which act as pain disposers is one with which you are all familiar, namely, the action of certain metallic poisons; of these the most important are mercury and phosphorus. It is highly significant that they have their main action in the structural changes they cause in the periosteum of bones, the peridental membranes.

In the case of phosphorus, I think it is now pretty generally believed that its poison has very little effect in the mouth unless there exist a precedent caries of a tooth or its socket. These facts almost suffice to take these agents out of the group of constitutionally acting into that of peripherally irritant causes. In this class of agents, as in the preceding one, the first indication in treatment is the complete removal of the sufferer from their baneful influence.

We have now briefly reviewed the main agencies which act constitutionally in the production of pain. It is apparent, to recur to our simple illustration, that they must have their main efficiency in the action they have on the central cell, and not on any modification of the impulses sent to that cell. It cannot be denied that in rare instances these various agents are productive of pain referred to a particular nerve, when we cannot find anything in the nerve itself or in the tissues supplied by it to account for the morbid manifestation. We are, therefore, constrained to believe, at least for the present, that morbid manifestations, sensations of pain, may originate in the cell itself and thence be referred outward. But I would remind you that the whole tendency of modern medical thought is to more accurately localize the starting point of disease, and to circumscribe the area of cases in which such outward cause of disease is unknown. So long as men were satisfied to cover up their ignorance in such vague phrases as "humors of the blood," "rheumatic diathesis," etc., etc., few were tempted to carefully examine the local conditions for an explanation. But the last fifty years have seen an enormous change in our attitude of mind to these problems. It is a change which is one of the greatest in the history of the human mind. And while I do not for a moment wish to underate the great importance of a due regard to the constitutional causes of pain, especially of the malnutrition of the nerve cells, I believe that in the main they must be classed as predisposing causes and not as efficient ones. When we come to the question of why pain is located or referred to a particular nerve, I believe the answer in the overwhelming majority of cases will be because there is some peripheral abnormality in that nerve or in some other nerve with which it is intimately associated; for we have to recognize in the philosophy of pain the same fact that we do in the philosophy of the human mind, namely, that our ideas are so closely associated that one thought will almost necessarily suggest another. Just as, if we have always been accustomed to see Smith and Jones together, we can hardly think of Smith without Jones also putting his nose in; so in feeling sensations, certain ones get so closely intertwined that one will almost inevitably causes the other. This, then, leads us naturally to the second great division of our subject, and that is the influence of peripheral irritation in causing pain.

From what I have just said, this may be of two kinds—a reflex or associated pain expressed in some other nerve than the one affected, or else it may be due to direct irritation in the nerve itself.

A very common example of the former is seen in the headaches from which many women suffer, from the menstrual congestion (irritation of the nerves) of the ovaries and uterus. It is, however, quite outside the scope of this paper to enlarge on this curious and obscure part of our subject. I prefer to take up the more understood and more common form of direct peripheral irritation, and especially the irritation arising from diseases of the teeth and jaws.

In that delightful book, "Rest and Pain," by Mr. John Hilton, the eminent London surgeon, he narrates a case, which is so instructive in illustrating the mode in which peripheral irritation may cause not only pain, but local disease, that I cannot forbear from quoting it:

"A gentleman, aged 63, came to consult me about an ulcer situated upon the left side of his tongue. On examination, I found an elongated, very ugly-looking ulcer, nearly as large as a bitter almond, and of much the same shape. The surrounding parts were swollen, hard, red, and much inflamed, and a lymphatic gland was enlarged below the horizontal ramus of the lower jaw on the same side. I saw in the mouth a rugged tooth, with several projecting points upon it, opposite the ulcer. This gentleman observed to me: "Having suffered a good deal from earache on the left side for a long time, without experiencing any relief from medical treatment, it was thought that I must be gouty, and I went to a surgeon who treats gouty affections of the ear. This surgeon paid great attention to my ear, but certainly did not do it the slightest degree of good. I accidentally mentioned to him that I had for some time past something the matter with my tongue. On seeing it, he immediately began to apply caustic vigorously; moreover, not satisfied with applying it himself, he gave it to my wife that she might apply it at home. I have gone on in this way from day to day, until the pain in my ear is very considerably increased, and the ulcer on my tongue is enlarging; so I have come to you for your opinion regarding my state; for, to tell you the truth, I am afraid of a cancer in my tongue." I thought I saw the explanation of this patient's symptoms. The pain in the ear was expressed by the fifth nerve, and there was a rugged tooth with little projections on it, some of which touched a small filament of the lingual-gustatory branch of the fifth nerve in the surface of the ulcer. I detected this little filament by placing upon it the end of a blunt probe. It was situated near the centre of the ulcer, and was by far its most exquisitely painful part. This exposed nerve caused the pain in the auditory canal which led him to go to the aurist, and the aurist, instead of confining himself to his own department, seized the tongue, put nitrate of silver upon the whole of the ulcer, and increased the mischief. I simply desired that the ulcer should be left at rest; that the patient, to avoid touching the tooth, should neither talk nor move his tongue more than necessary; that he should wash his mouth with some poppy fermentation, and take a little soda and sarsaparilla twice a day. In three days about one-third of the ulcer was healed up, actually cicatrized, the enlarged gland nearly gone, and the earache much diminished.

This rapid improvement might appear something like exaggeration, but all surgeons know that the tongue has those elements within it which contribute to the most rapid repair of injury. I do not know any tissue that repairs itself more rapidly. It is abundantly supplied with capillaries filled with arterial blood, and has an enormous distribution of nerves, and these are two elements that contribute to rapid reparation. It was quite clear that the treatment was in the right direction, viz., that of giving rest to the tongue and ulcer. After a few more days I requested him to consult a dental surgeon with respect to the propriety of taking off the points of the tooth. This was afterwards done, and the patient soon lost his anxiety about cancer, his earache, and all his other severe symptoms."

I cannot doubt that the starting point of a large number of similar painful ulcers and of true cancer of the mouth is to be looked for in disease of the teeth.

When we come to the teeth themselves, the pain lies in the irritated nerves of the pulp. Of course it cannot be denied that the pulp itself may be the original seat of the pain, but, if so, the number of such cases must be few. When we reflect on the mode of nutrition of the tooth, it seems almost self-evident that any depressing agency which could lead to disease of the pulp must, by an augmented action, cause greater disease in the structures which depend on the pulp for their nutrition to start with. At most, disease and pain in the pulp alone must be nothing less than a pathological curiosity. Such, however, is not the case in the vast multitude of cases dependent on caries, in which the pulp has lost in part or in whole its protection from external morbid influences. The origin of caries is one of the most interesting subjects in the whole domain of surgery. I have been astonished to find that among dentists it is not more definitely settled. So able a writer as Wm. Henry Potter (of Harvard) says: "In the first place, it may be said that caries of the teeth does not resemble caries of the bone. The term caries, as applied to the teeth, is a misnomer, given at a time when the true nature of the process was not understood. . . The pathological change which occurs in caries is a decalcification and disintegration of the several tissues of the teeth."

I confess that strikes me as a very excellent description of what surgeons usually term caries, namely, a molecular death of bone tissue. Nor can I see any difference in the essential nature of the two processes, if you make due allowance for the morphological modifications of tooth structure from bone structure, and the different environment under which the process takes place. If I were asked to define dental caries, I should say it was a molecular death of the tooth structures, especially the dentine, due to the action of micro-organisms; that in the course of the process lactic or other acid is developed, which decalcifies the teeth, is doubtless true, but the very presence of acid fermentation in a normally alkaline cavity necessitates the assumption of the action of micro-organisms. I would remind you that the conditions favorable to the activity of such organisms are all apt to be present. They are:

1st. The presence of the micro-organism.

2d. The existence of a suitable pabulum.

3d. A certain degree of moisture.

4th. A certain degree of warmth.

5th. A certain amount of oxygen or air.

6th. A lessening of the resisting power of the tissues affected, as compared with health.

All of these first five conditions are notoriously present in the mouth. That we do not oftener suffer from their effects is due to the absence of our sixth element, the lessening of the resistance of the tissues. Thus, in health, those organisms which flourish best in an acid secretion have their baneful activity held in check by the alkaline saliva as well as the resisting power of the dense enamel. But once let the alkalinity of the saliva be lessened, or changed to an acid reaction, or let ever so small an abrasion occur in the enamel, and the myriads of these agents find a foothold for starting the morbid train of symptoms. Similarly, even in the tissues themselves, the enamel, no less than the dentine, suffers from those predisposing causes of constitutional malnutrition, which are so important in their effect on the central cell, and which act in lessening the normal resistance of the periphery.

It would be a work of supererogation to trace the progressive course of caries and the mechanism of the production of pain through irritation of the pulp. But when we come to the question of treatment, the two main considerations to be accomplished are worth our study; these are: the relief of the pain, and the arrest of the carious process. The arrest of the pain is what the patient comes to you for, and prompt action is eminently desirable. I was much impressed with this in a case I saw a few weeks ago, in which an active business man, somewhat run down by overworking, suffered from toothache (I think due to caries) for several days before consulting his dentist, my friend Dr. Jarvie. The pain in the third division of the fifth nerve gradually subsided after treatment, but was followed by a well-marked neuralgia in the great occipital nerve of the same side. He again allowed some days to elapse before sending for me, and I found him suffering from a very intense crisis when I called. It was promptly relieved by the use of a remedy to which I invite your particular attention, namely, aconitia.

It has seemed to me for some time that this agent should form parts of the armamentarium of every dentist. From the fact that I have found it unused or unknown by some of your most progressive men, I shall not hesitate to say a few words about it to bring it before you.

Aconitia, or aconitine, is the active principle of the familiar drug aconite. Although discovered fifty years ago, it is only within the last ten or twelve years that it has been intelligently used. It is an extremely potent remedy, and must be used with great caution. In large doses it acts as a dangerous heart depresser, and paralyzer of motion and sensation. But in physiological doses it is without danger and is pre-eminently useful, because of a special action it has in relieving pain of the fifth nerve. In other neuralgias it is, for some unknown reason, far less potent. Our excellent Brooklyn pharmacist, Dr. Squibb, has put upon the market a most reliable preparation of this drug, an oleate, containing two per cent. of the crystallized salt. This seems to me a form which is peculiarly adapted to dental work. Ordinarily in prescribing this remedy internally I begin with $\frac{1}{200}$ of a grain and repeat it every hour; often one or two doses will suffice to relieve the pain, and it is seldom that more than four are required.

In using it locally if you wished to begin with the same doses, it would be necessary to dilute one drop of Squibb's oleate with three drops of bland oil for each drop of the mixture to contain $\frac{1}{200}$ of a grain.

An application of this medicament would be more effective, I believe, in relieving the pain of an exposed or inflamed pulp than those remedies now in use. I can testify from personal experience of the frequent inefficacy of the local application of oil of cloves and chloroform, while the use of the stronger remedies, as ninety-five per cent. carbolic acid or pure creosote, can only be efficacious by more or less coagulating and therefore in so far destroying the nerve tissue and the pulp. And this I take it is always to be avoided when practicable. I hope therefore, that some of you will give this remedy a trial, and verify practically my suggestion.

Having relieved the pain by one way or another, what means do you adopt to stop the progress of the caries and restore the tooth as a useful member of the economy?

Now if our considerations as to the origin of caries were true, that it is a disease due to the agency of septic micro-organisms, the logical consequence is that successful treatment must be in the line of antiseptic treatment. I presume this will cause a smile at the presumption of an outsider venturing to enter on so practical a subject, and perhaps some one will mentally quote the line about "fools" rushing in where angels fear to tread. But it is possible that much of your practice may have been truly antiseptic, just as the wise surgeon's has been, long before we knew the why and wherefore of what experience has now taught us to be true. We are all more or less like the hero of Moliére's comedy, who was astonished to find when he arrived at middle age that he had been talking prose all his life without knowing it.

Now if we analyze your proceedings in the treatment of caries, and thus relieving the painful or inflamed pulp, let us see if they are not based on antiseptic principles, even though unconsciously employed.

First of all I take it you aim to remove all the carious material by means of your instruments, and the success of the operation is dependent on the thoroughness with which that is done. Does not that seem as if you were removing a true infective centre, and thus obviating the first condition favorable to the development of caries—the presence of micro-organisms.

Now let us see how you combat the second favoring condition, and that is the presence of a suitable pabulum ; is not that done by the simple mechanical interposition of your filling between the diseased surface and the fluids in the mouth ?

Again we found a certain degree of moisture needed, do you not scrupulously dry as well as clean out your cavity, and is not your filler non-absorbent as far as possible ?

Fourthly. We found a certain degree of warmth was favorable ; that is, of course, always present in the living body, and in choosing a good non-conductor of heat as your plugging material, it is with reference to the secondary effects of caries, the pain caused by thermal extremes, and not with special reference to the disease itself. Indeed, could we obtain a substance which would combine the resistance to organic and chemical action that gold does with the poorness of conducting power of gutta percha, it would be a great advance.

The presence of air in the decayed tooth is also prevented by the mechanical means ; while lastly you substitute an artificial tissue to resist in place of the dentine and enamel that is gone.

Indeed it seems to be that the whole process of successfully filling a decayed tooth is one of the most perfect examples of antiseptic treatment I am acquainted with. I doubt not there will be further advances made in your technique, but the principles will not change. I believe it quite likely that it will prove desirable to more thoroughly disinfect the carious cavity before filling than is always done now, and it may prove possible to devise some material which, either by its hardness or by its chemical constitution, or by some antiseptic incorporated with it, will longer resist the destruction due to attrition and to chemical and micro-organic action than the ones now in use.

To recur to the main problem of our paper—the relief of pain—is it not true in this class of cases that after the first effects are stilled, its recurrence is prevented by affording artificially that immunity to the pulp from peripheral irritation which it possesses in health?

Disease of the peridental membrane causes a characteristic pain, but one which need not long detain us. From the fact that it is nearly always secondary and not primary, its treatment should first of all necessitate the removal of the originating cause. The spread of inflammation or decomposition from the pulp to the periosteum which so often occurs can be better accounted for by the hypothesis of the action of micro-organisms than by any other supposition. Moreover, in the advanced cases, where pus has formed, the same cardinal indication of treatment, viz., proper drainage, obtains here as in other departments of bone surgery.

We have already spoken of the constitutional poisons, syphilis and mercury and phosphorus, which may be causes of this form of trouble, and I would only like to say one more word, and that is in the way of treatment.

Occasionally it has seemed to me that you can stop the further progress of a periostitis, if you get it in an early stage, and prevent it from going on to suppuration. I remember one case of a gentleman who applied to me for a very painful gumboil in his lower jaw opposite the first molar. The gum was swollen and reddened, and a well-marked phlegmon could be felt. I gave him fairly large doses of mercury for a couple of days, and it gradually melted away. There was no suspicion of syphilis in this case.

Another remedy I believe to be of great value in treating neuralgia of the face starting in periosteal irritation, is phosphorus. The best form in which to administer this remedy is the preparation known as Thompson's solution. I can testify to this from personal experience. Some twelve years ago I suffered from periostitis of the first bicuspid of the upper jaw on the right side. A couple of years later, while working hard, I had an attack of intense neuralgia of the entire second division of the fifth. When it subsided, it left some periosteal thickening at the exit of the nerve from the infra-orbital foramen; and ever since then, whenever I get run down by overwork or worry, the same pain crops out. But I have found that a few doses of phosphorus will completely hold it in check; and in one or two patients, since then, I have seen the same fact, that in the neuralgia due to periosteal irritation this remedy holds a high place.

It has seemed to me highly significant that the two drugs, mercury and phosphorous, which in continued toxic doses cause this very class of diseases, should in physiological doses be curative. But this is in entire consonance with the general laws of tissue irritation, and the therapeutic fact that certain drugs acting through the nervous system stimulate in small doses and narcotize in large ones.

The last type of dental pain I will speak of is that arising from pressure due to hypertrophy of the cement. Where this is not due to the peripheral irritation of a carious tooth, the causation is both interesting and obscure. It has seemed to me that we must postulate the agency of a constitutionally acting cause to account for certain of these cases. I think it quite probable that in certain cases a well-marked gouty diathesis will be found underlying this form of disease; and a similar constitutional error must be invoked to explain the allied cases of calcification of the pulp.

We have now briefly reviewed the main forms of peripheral irritation, which act as the efficient causes of dental pain, just as we have glanced over the main constitutional causes that predispose to it. I think you will all agree with me that for the successful treatment of these cases, especially in the chronic and inveterate type, local and constitutional treatment have both to be employed. It seems to me there is great need for the more intelligent co-operation of physicians and dentists to attain the best results. Attention to one side of the question is not sufficient. For the permanent cure of our patients, the treatment of the local mischief has to be supplemented by attention directed to the constitutional conditions that predispose to it. One of the cases I quoted illustrated the important fact that a local irritation may set up a condition of pain in other nerves which the cure of the original lesion entirely failed to relieve. This fact is borne out by many similar conditions which we meet with in other departments of medicine. On the other hand, while a particular attack of pain may be relieved by constitutional remedies, its recurrence can only be prevented by curing the local condition, which acts as the exciting cause. The enormous preponderance of cases of pain of the fifth nerve, compared with other nerves, is to be accounted for by the liability of the delicately adjusted mechanism of the organs supplied to get out of order. This is especially the case with the eye and the teeth.

It is beyond the scope of my paper to take up the various constitutional remedies of which we can avail ourselves, rest, the influence of food, the use of the various drugs, the employment of counter-irritation, of electricity, and, lastly, of those surgical procedures, exsection and stretching of painful nerves, which are our last resort.

I will more than have attained my object if I have pointed out, however imperfectly, some of the many interesting points at which our respective fields of work touch. Those points where we need your help, and you ours, to accomplish the best results.

And now, in conclusion, if we revert to our original question as to what it is that constitutes pain, I think that we will find that both the great authorities I quoted are wrong, and both are right; each has stated half of the truth.

If your observation and reasoning agree with mine, we will be forced to believe with Anstie that pain in its essential nature consists in a diminution of the vitality of our central cell, but to further allow with Erb that this is occasioned, or first brought to our notice in most cases, by an increase in the impulses sent to that cell by means of peripheral irritation.

BACTERIA, WITH A METHOD OF STAINING FOR DIAGNOSTIC PURPOSES.

BY JOSEPH KETCHUM, ESQ.

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In presenting the subject of Bacteria, I wish to disclaim any originality for the matter offered. I have endeavored to collect from such sources of information as I have access to the important dates, names and facts which have marked the progress of bacteriology up to the present time.

So far as we know, the first observer of bacteria and the so-called infusoria was Leenwenhoeck, who, with a simple magnifying glass, noticed in a drop of putrid water the multitude of little granules moving about in it. This was in 1675, and his observations were communicated to the Royal Society of Sciences in the same year. In the following year he recognized bacteria in the tartar from the teeth, and though he did not name them, his description of their forms and his drawings enable us to identify them as vibrios. There appears to have been no important investigations carried on until nearly one hundred years later, or in 1773, when Muller, a Dane, attempted to classify the organisms then known. He called them all infusoria, from the fact that they were the product of infusions, and divided them into two genera—the monas and vibrio. The monas he subdivided into ten forms and the vibrio into thirty-five; but his descriptions of them are so faulty that it is at present impossible to identify them from his writings. During the following century the study of bacteriology attracted more or less attention, and in 1829 Eherenberg, who is the Humboldt of the science, commenced his investigations, which for fifty years he pursued with an ardor and enthusiasm second to not even Darwin himself. He, in 1838, classified the family of vibrioniens, and with the additions made by Dujardin in 1841, placed them in a scientific category. Of course during this period many were the disputes and discussions as to specie, genera or family, each newly discovered member belonged to. And we have to come to the period of Hallier, Hoffmann and Cohn, and many others, before the questions, which had up to that time been in dispute, were settled. Ehrenberg's original classification was into:

1. Bacterium, or rod-like—three species.
2. Vibrio, snake-like and flexible—nine species.
3. Spirillum, or spiral, but inflexible—three species.
4. Spirochœte, spiral, but flexible—one species.

Dujardin, in 1841, in his Natural History of the Zoophytes, accepted the classification of Eherenberg, except that he unites the spirillum and spirochœte, calling them all spirillum. Up to this time all bacteria had been considered animals, but a close study of their life history and habitat by those who followed declared them to belong to the vegetable kingdom, and as such they are accepted to-day.

In 1853, M. Chas. Robin pointed out the relationship of bacteria to Leptothrix, a form of fungi closely allied to that of mildew; and M. Davaine, in 1868, clearly demonstrated their relationship to the vegetable world. From this time the progress of bacteriological investigation has made rapid strides. Prof. Pasteur in the organisms of fermentation and the role they play therein; Davaine and Hallier in demonstrating the specific relationship of bacteria with charbon or anthrax; and the work of Koch, Nageli, Kohn, Bilroth, Miguel, Burdon, Sanderson, Klein, Weigert, Klebs, Ehrlich, Sternberg, and many others, are too recent to require special mention.

Few have more than the faintest conception of the minuteness of these organisms. Prof. Cohn, justifying himself for the unscientific method of comparison which he uses in class instruction by Prof. Tyndall's argument on the scientific use of the imagination, says he compares man to the cheese mite, as the Strasburg cathedral to a sparrow. Of the animalcules which Leeuwenhoek discovered, they are to man as the bee is to the horse. As improvements have been made in microscopes, just so fast have we penetrated into the world of micro-organisms, until now the proportion between the smallest we can see and man, is as man is to Mont Blanc.

Of course, with these exceedingly minute structures, nothing can be made out except points. Among some of the larger forms, a few have been able to see cellia, and in some cases the growth of the spores; but in the present state of microscopical optics the work is slow, and progress in this direction is waiting an advance in the science of optics.

Like all living organisms, bacteria propagate themselves. The most usual method is by fission or by partition, though Magnin and Cohn have recorded their observations on the formation of spores and sporangia, and I have myself witnessed the last named method. It is of importance to note that while the bacterium is killed by continued exposure to temperatures of freezing or 176° F., the spores will germinate after protracted exposure to temperature as high as 205° F. or as low as °123 F. These spores will also withstand complete dessication, and it is in this form, mixed with the air we breathe and move in, that present the conditions from which all zymotic diseases originate. Miguel has shown that, while the air contains very few adult bacteria, it contains myriads of their spores. To the researches of Koch, Pasteur, and others, we are indebted for the certain information that, while these omnipresent germs withstand such vicissitudes of temperature, they require certain food for their maintenance; and though we cannot as yet tell what that food is, we know that when nutrient material is submitted to their action they thrive for a time, and when the particular principle which supports them is exhausted they die. This is particularly true of pathogenic germs, and the accepted theory of the bacillus tuberculosis, or the germ of consumption, is a good illustration. It has been demonstrated by Koch, Klein, Pasteur, Frankell, Sternberg, and others, that they require some product of inflammatory action for their support within the body of their victim. This is also true of cholera, at least so far as their dietary requirements are concerned. The animal cannot be infected with tuberculosis by merely introducing the germ-laden material into the stomach or upon any of the mucous membranes; but if an inflammatory condition be present, either due to the puncture of the introducing needle or scalpel, or to extraneous causes, such as a catarrhal condition of the lungs, tuberculosis is as sure to follow as the sun is to rise again.

The human mind can scarcely comprehend the enormous numbers of these omnipresent atoms without a resort again to the legitimate use of the imagination. A computation of the increase from a parent germ shows as follows: We know that the parent grows until it reaches double its original size, when it constricts itself in the middle like a figure eight and breaks into two individuals. Each of these divides again, and, on account of the rapidity with which this is done, we find them usually in chains or squares. The warmer the air, the faster this proceeds, and at the temperature of the body the entire life history of a germ, from the time of fission of the parent to the time of his own subdivision into two new individuals occupies less than one hour. This gives us a known quantity for our problem. Let us look at the result. From a single germ increasing by the power of two each hour, we have at the end of twenty-four hours 16,777,220; at the end of two days the number has increased to 281 billions, and in three days to the enormous number of 48 trillions, and in one week the number can only be expressed by figures of fifty-places. In order to make this number comprehensible, let us figure the mass and weight of this, the result of a single bacterium. A single Bacterium Termo has an average width of 1–1,000 mm. A cubic mm. would therefore contain six hundred and thirty-three millions, and in one day would be one-fortieth full. At the end of the following day there would be required 444,570 such cubes to contain the product of the parent, or say half a litre. Suppose the seas of the earth cover two-thirds of its surface with a mean depth of one mile, the aqueous product would be 929 million miles. Now, our parent germ and its product would in five days completely fill this space. More wonderful still is a gravimetric estimation. Suppose we call the specific weight of the parent germ the same as water, which cannot be far from right, it would appear that the parent weighs, or his equal bulk of water weighs, 136 millionths of a gramme; in forty-eight hours, 442 grammes; in three days, nearly 7½ million killograms; and, inside of thirty days, the weight of the earth itself.

Prof. Cohn, in offering these figures, says: "I don't consider this idle play; without it we can form no conception of not only the enormous increase, but the tremendous destruction of these germs which is going on around us. Food is lacking to support more than a comparatively small proportion of the product of the parent, and, as it is demonstrated that they feed from their environment, one can readily understand that without a constant supply a given infectious germ will with its followers soon destroy its nidus or perish from starvation."

Our breweries demonstrate the truth of this hypothesis; for, in twenty-four hours, a single yeast cell, which is 8–1,000 mm. in diameter, will yield one hundred-weight of yeast.

I have endeavored to present the subject in a condensed but general way without burdening you with technical details of species, genera or life history. The subject is a vast one and to which the best minds of the scientific world are devoting themselves. To those who are or may become interested in bacteriology and particularly to those who study the relation of these germs to disease, is held forth the reward which is sure to come to those who work persistently and intelligently.

The method which I shall employ to-night is eclectic. Doubtless each investigator will find fault with some parts of the process and perhaps suggest a better one. The following, however, has in my hands worked well and given entire satisfaction, so far as I know, to those who were and are most interested.

The apparatus necessary is as follows:

One two-inch glass funnel.
One package filter papers to fit same.
Four medium size test tubes.
Two glass or porcelain staining glasses.
One glass or agate mortar and pestle.
One cover holder.
One pair pincetts.
One alcohol lamp.
Package of wooden toothpicks.

The cover holder may be easily made by taking a piece of thin platinum, two inches long and one-eighth wide, splitting one end for half an inch up and bending into a Y shape, then lashing to a small handle (I use a match). This little tool is most convenient for floating cover glasses in staining fluids.

The reagents necessary are as follows:

A five per cent. solution of nitric acid in alcohol (95 per cent.).
Saturated alcoholic solution of fuchsine.
Saturated alcoholic solution of methyl blue.
Small quantity of alcohol, 80 to 95 per cent.
Pure colorless aniline oil (anilin).

The method is as follows:

First pour enough aniline into a test tube to cover the bottom and half fill with water, shake violently for two minutes, and filter through funnel, which has previously had wet filter paper fitted. It is essential that the filter paper be saturated with water, else the analine oil will separate during filtration. Our next step is to deposit specimen of sputum in mortar (if very viscid, add a few drops of water), and triturate thoroughly in order to break up encapsulated colonies, and distribute evenly through the specimen.

Now remove an amount which will just cover end of toothpick, and deposit it on a previously cleaned cover glass, which should not be over $\frac{1}{100}$ inch thick, and thinner if possible; immediately cover with another cover glass, allowing sputum to spread by capillarity or slight pressure, and separate by sliding apart, and put aside to dry without heat. I have found that specimens dried without heat (and consequent coagulation of albumen) will show a much larger number of bacili than when heat is used. I believe this is due to the fact that the fuchsine penetrates more thoroughly through the albumen when not coagulated, or that when it is coagulated by heat it to a greater or less extent it protects them from the action of the stain. While the covers are drying we will pour out a sufficient quantity of the aniline water, which by this time has filtered into one of the staining glasses, and add one or two drops (not more) fuchsine solution. Now, placing one of the cover glasses on our cover holder, sputum side down, we lower it into the staining fluid and withdraw holder from the side, and repeat the operation for the other cover glass. It is my habit to allow the covers to remain in this solution for at least eight hours or over night. The time may be reduced to ten or fifteen minutes by heating the red stain to about 140 or 150 F., but the result is not so brilliant, nor is it sure, as I have frequently failed to find the bacilli by the short method, but have been able to demonstrate their presence by the long one.

At the end of either of the above periods of time, the cover glass is lifted out of the staining solution and, without washing, immersed in our five per cent. solution of nitric acid and alcohol. It is this part of the process, if any, which will give trouble, as the time of immersion is governed by the thickness and general character of the sputum. My custom is to hold the first cover immersed until the color has just disappeared, or say fifteen seconds, and the second five seconds longer; but a very little experience will remove any difficulty from over-decolorizing.

From the decolorizing solution they are immediately immersed in water and thoroughly washed, when they may be again floated in the contra-stain, which is prepared by filling the other staining glass with water to which a few drops (three or four) of our methyl blue has been added. They should remain here for from five to eight minutes, when they are again removed with the pincetts, and a few drops of alcohol poured over them to wash off the surplus stain. Again wash in clean water, and dry by gentle heat (which will now do no harm) over the alcohol lamp, and place sputum side up on table.

A very small drop of thin benzole balsam is now placed in the centre of each cover, and a cleansed slide gently lowered over one in such a position that both covers may be mounted on a single slide. As soon as the slide has been sufficiently lowered to come in contact with the drop of balsam, it spreads by capillarity, and draws the cover close to the slide without the slightest danger from air bubbles being engaged, and the slide may at once be inspected by a *dry* objective.

I have found it necessary to use an objective at least as high as one-fifth or one-sixth, with central illumination without diaphragm, as cases will frequently occur where the staining is so faint, that with a lower power they will escape observation, though a good, wide angle, four-tenths inch, will show them well when strongly stained.

I have endeavored to explain the method with perhaps too strict a regard to detail, but am sure that one who follows the various steps once or twice cannot fail to acquire the necessary technique without occupying more than fifteen minutes of working time; that is to say, five minutes to the first staining, and en the following morning to prepare and mount for observation.

171 GATES AVE., BROOKLYN.

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ADDRESS TO THE GRADUATES OF THE LONG ISLAND COLLEGE HOSPITAL TRAINING SCHOOL FOR NURSES, DELIVERED JUNE 12, 1888.

BY GEORGE G. HOPKINS, A. M., M. D.

Ladies and Gentlemen and Class of 1888: We are apt to claim the trained female nurse as the outcome of the more rational treatment of disease, in modern times, but this is wide of the truth. So far as I can ascertain, in my researches among the ancient Vidas of Hindostan, and the literature of Egypt, Greece and Rome, I find no allusion to female nurses as a class, until the third century of the Christian era. Surgery and medicine had attained a high degree of perfection, many operations which to-day we claim as new to the nineteenth century were successfully performed 4,000 years ago; but the special nursing of them seems to have been done by the medical student, or by the practitioner himself. The earliest record I can find of women devoting themselves to the care of the sick, and attending to all the duties of a trained nurse, is that of Empress Helena, mother of Constantine the Great. This noble woman, who lived nearly fifteen hundred years ago, not only founded a hospital and endowed it, but herself, with the ladies of her court, there gave the most devoted and tender care to the sick poor. The Emperor Valens presented the most beautiful grounds and buildings in the neighborhood of Cæsarea to Archbishop Basil, "for the benefit of the poor whose bodies were afflicted with disease," as being those who stood most in need of assistance. And as early as A.D. 373, the Archbishop had organized at Cæsarea an immense hospital, called the "Basilides," which Gregory Nazienza thought worthy to be recorded among the wonders of the world; so numerous were the poor and sick who came thither, and so admirable was the care and order in which they were served. The charge of these sufferers was not at first assigned to humble hands ; the most illustrious ladies of the empire participating in the offices of mercy.

At Constantinople the Empress Flacilla, wife of the elder Theodosius, in the year 380 was watching with solicitude over all those whose bodies were mutilated, or who had lost limbs. She visited them in their own dwellings, waited upon them herself, and supplied their wants. She repaired with the same zeal to the public hospitals of the church, where she attended the sick, made ready their culinary utensils, tasted their broth, carried the dish to them, broke the bread, divided the meal, washed the cups, and performed for them all the offices which usually devolve upon servants. One might justly be proud to be in such royal company, and regard, as she did, nothing degrading which is necessary to be done for a sick patient.

In modern times, the revival of nursing by trained women is due in great measure to that noble and accomplished woman, Florence Nightingale. As early as 1844, at the age of twenty-one years, she began to exhibit her interest in and the alleviation of suffering, and the improvement of the care of the sick poor in the hospitals of Great Britain. She visited and inspected the hospitals of Europe, and in 1851 entered into training as a nurse, in the institution of Protestant Deaconesses, at Kaiserworth on the Rhine. On her return to London she put into thorough order the Sanitarium for Governesses, in connection with the London Institute. She served ten years of apprenticeship before entering on her life work.

In the spring of 1854 war was declared with Russia, and an army of 25,000 men was despatched to the Crimea. The faulty arrangements of the British government for the care of the sick and wounded furnished the theatre in which Florence Nightingale was to win her first laurels. The hospitals were soon crowded, and the mortality in the wards so great that the casualties of the fiercest battles were as nothing in comparison.

The war office recognizing the condition of affairs, gladly accepted the offer of Miss Nightingale to go to the seat of war and organize a nursing department.

Her devotion to the sufferers can never be forgotten, she has stood twenty hours at a time, directing and assisting in the care of the sick and wounded. Her unfaltering devotion and incessant work undermined her health; but though sick and feeble, she never left the field of duty until Turkey was evacuated by the English troops. Major Delafield (who with Maj. Mordecai and Capt. Geo. B. McClellan, U. S. A., had been sent to Europe by our government, to study the art of war in the Crimea), in his report to the War Department, remarks, in speaking of the English hospital at Scutari, "It was in this well-arranged hospital that that most estimable lady, Miss Nightingale, exercised her powerful influence in alleviating the condition of the sick and wounded from the battle-field. Women as nurses were employed to attend upon the men in the wards, under the kind and beneficent guardianship of this good lady, with the many advantages that would naturally follow the most gentle, painstaking, and cleanly attendance of women as nurses. Miss Nightingale's efforts have resulted in the establishing, in connection with the English army, an office known as the 'Superintendant General of Army Nurses,' the office to be always filled by a woman She has under her a corps of female nurses, who take care of the sick in the military hospitals." The Sanitary and Christian Commission of our late war was the outcome of the volunteer nursing in the English war of the Crimea and the fruit of these efforts in this country are the training schools for nurses which have sprung up all over this land.

Next to our entrance into this world and our departure from it, occasions such as the present, when we have completed our education and are about to enter upon our chosen vocation, are the most important events in our lives. The calling which you have chosen, while not a new one, is comparatively new in having special schools, and courses of study provided for it. Nursing has always been considered peculiarly woman's work—more or less adaptation to such work is inborn in woman. What man can smoothe the pillow of the sick, or soothe an aching brow as gently and acceptably as one of the gentler sex! Who can move as quietly, and approach the bed of pain so gently as woman !

I have seen sick men, absent from home and friends, sigh for a mother, sister, or wife who is not at hand.

Thanks to this school, and others, everyone can now have skilled female care when sickness and disease are upon them.

You who are about to go out from us to-day, are entering upon a calling which will require all the skill, faithfulness, courage, patience, forbearance, endurance, watchfulness, self-possession, tenderness, cheerfulness and tact, that a human being can possess, and above all, "a conscience void of offence toward God and man." "To thine own self be true, and it doth follow as the night the day, thou canst not then be false to any other " You have each and all of you received, at the hands of your admirable Superintendent, and the lecturers of the College, such definite and varied information in all the departments in which you may be called to act, that you ought to be prepared for most emergencies, and have shown by your examinations that you have heard and understood them.

The fault will be yours, and yours alone, if you do not treasure them in your minds, so that you may be not only trained but *skilled* nurses. The responsibility for the proper management of a sick-room and the patient in it is a very high and grave position, and requires the utmost faithfulness on the part of the nurse. Unless you are willing to put aside everything that may interfere with your giving *yourself* entirely and conscientiously to the care of your patient, do not assume the charge. But when you once receive that charge remember that you are dealing with that which disease can destroy by your negligence, and no human power can restore—a precious human life. You therefore owe to each case all that a faithful mind can suggest and the body endure; and such faithfulness has not been wanting in the former graduates of this school.

I can never forget the scene when one of our graduates, after having charge of over thirty cases of typhoid fever among some orphan children, and we had to lose one, whom she had nursed as faithfully and tenderly as its own mother could have done, how, when she had done her all and death claimed him, there were tears shed for one who had no mother to shed them. And it was due largely to her unremitting faithfulness that we were able to record but two deaths in thirty-three cases. That woman has not had an idle day to my knowledge in several years.

When any unexpected emergency arises, which to your educated eye teaches you that your patient is in extreme danger, do not alarm the friends unnecessarily; try not to show in your voice or conduct that you are demoralized and have lost courage. While doing the best you can (until the arrival of the physician, whom it was your first duty to have summoned), encourage those around you, and keep them busy if you can, as, unless they are occupied, the coming of the physician will seem to them unreasonably delayed, even though he be at hand when called. Above all, do not let every physician within reach be sent for, unless the situation is one of great urgency, as I believe many patients have been frightened to death by the demoralization of solicitous friends.

If you can show yourself capable and maintain your own composure of mind, you will be able in nearly every instance to avert a panic, and in many cases prevent disastrous results to your patient. But if you fail at times for want of proper courage, do not give up with a feeling that you are unequal to emergencies, only be the more determined not to show the white feather again.

It is a well known fact to military men, that veteran troops who have stood the brunt of the fight in many a battle, become demoralized unexpectedly and retreat, to the utter surprise of their officers. But in their next battle their courage and deeds of prowess again surprise every one. So be it with you.

In the sick-room nothing so distresses the helpless sufferer as a want of frankness on the part of the attendant. You may refuse or neglect to answer, or turn the subject if possible, but never tell what are called "white lies." One lie always requires another to cover it, and sooner or later you will be caught. If it is not best to tell, say outright it is better for me not to answer that question; or it may be the least of two evils to answer it faithfully as patients often imagine that things are far worse than they are. I believe that we of the medical profession often err in withholding from patients that which it is best in the end that they should know. This is one of our most difficult lines to draw.

If you have not learned or are not determined to learn to endure the caprices and demands of unreasonable men and women in the most unreasonable hour of their lives, you have mistaken your calling; as without Christian patience, I do not believe it possible for a nurse to succeed for any length of time. The trials and vexations of a nurse's life are so numerous and so constant, that it is a wonder to me that there are so many who are ready to enter this calling in life. There is no need since the revival of professional nursing for women to torture themselves or do penance. Be as ready to minister to disagreeable people as a person who two years ago wrote that she would take a fresh air child, saying "send me one of the dirtiest, most unattractive and unruly of the children, one whom nobody else wants." An unreasonable, selfish and wilful patient is a purgatorial discipline for both nurse and doctor.

Remember that the most gentle and considerate of people will say and do things when sick unwittingly, that in health they would sooner cut out their tongues or destroy a limb than say or do. The mind is sick as well as the body, and the patient not responsible. Cultivate forbearance and endeavor to sear all your tender points. Be ever ready to excuse and believe that no slight was intended, unless it is reiterated and you are forced to believe it.

The physical and mental strain which you are at times called to bear will be very great; that you may be able to endure it, you must give special care to your health. You have been taught the laws of health, and yours is so arduous a calling you must observe them strictly. Dame Nature is a stern mistress, and if you disobey her you will surely suffer for it. When you are out of employment you will need recreation and diversion to keep both body and mind in the best condition. When you are in charge of a patient, the time away from the bedside is not yours to do with as you please, but for rest and fresh air; as-you owe it to your patient to give the best possible service, and thus only can you do it.

You must cultivate the habit of observing the last change in your patient's condition, so as to be ready to meet any emergency; it will not do to sit down and watch you patient as a cat would a mouse. Yet in severe cases your eye should hardly ever be off your patient; this should be accomplished and can be done in such a way as to be almost imperceptible to the sufferer. Every little change should be noted, and if any importance may attach to it, it should be written down as soon as you can conveniently do so. You are the physician's eyes, ears, and hands while he is absent; you cannot therefore be too watchful.

Each one of us has certain vulnerable points of character, but it is not always easy for us to see them. If we would be self-possessed we must seek to discover these weak points in our armor by seeing ourselves as others see us; then by learning how to cover them, and not be disconcerted when our weak point is attacked. No *one* virtue is of more value in your arduous calling than this one of self-possession.

In this world of care and trouble much can be done to ameliorate suffering and soften the sting of pain by tender, sympathetic care; your patients will expect less of you if all you do is done with ease and quietness and thoughtful tenderness. You will then be likely to gain a friend in every patient; the patient will feel that a friend has gone when you depart.

A cheerful character rides smoothly over many rough places in this world that otherwise would jolt terribly. A bright, cheery nurse is better than many a dose of medicine for the patient; therefore be always cheerful. By cheerful I do not mean frivolous, as levity is the last thing that should appear in a room where such mighty elements are at work as in the sick-chamber. Therefore be cheery, but not mirthful or giddy.

There are some words in the dead languages which it is almost impossible to put into English without, in a great measure, losing their meaning because they contain so much in themselves; they are so difficult to define. So there is one little word in the English language that contains so much in itself that it is impossible to define it in a few words, and after using many you feel that you have only sailed around it without getting at the central and most important part of it—that word is *tact*. But it is the want of that which has consigned some of the brightest and noblest minds that I have known to oblivion. I call to mind just now one of the best read and most highly cultured and gifted men that the medical profession of Brooklyn has ever known. He lived and died among us, unappreciated except by the few who knew him best, little sought after by those who needed balm for their diseases, which he was better able to apply than most of his companions, and with scanty maintenance, while medical sky-rockets about him were riding into lucrative practices. The suffering continued to suffer, when, if they had only known it, skilled and efficient help was at hand, in a man who did not know how to so bear himself as to win the confidence of the community. Had he possessed a little tact his name would have been known to the world.

I want to say to each one of you, consider well if you propose to follow this arduous calling, pause and consider whether you really feel that it is your vocation, and feel equalto its physical and mental demands.

An ideal to strive after is good for us all. I will lay before you to-night one that was realized in the history of a friend who is now in a better and happier clime than this, and whom I would be glad to have each one of you strive to emulate.

Some years ago, before, as far as I know, there were any trained nurses in this city, I was asked to go to see a lady in a neighboring village, who had been confined to her bed for more than a year, and was supposed to be incurable. A year from that time she was able to be about, and six months later she determined to devote her time to the care of the sick poor. She did so, and I never had any one who would, or could, take better care of every case that fell to her charge. I always felt that, as far as human skill and strength could do it, my directions would be carried out to the very letter. Her last case was that of a little girl who had been burned over about three-quarters of her body, a degree of burning usually considered fatal; but in this case it did not prove so; and for months this noble woman dressed this suffering child, and would let no one else do it. Little Tina dreaded to have any one else touch her. The child was almost well, and this good woman was just finishing her morning dressing of the burn, when she suddenly fell back and expired. The soldier died at her post of duty.

"Like a star which maketh not haste and taketh not rest, let each be fulfilling his heaven born hest."

THE ETHICS OF OPIUM HABITUES.

BY J. B. MATTISON, M.D.,

Read before the Society of Medical Jurisprudence and State Medicine, June 14, 1888.

"All men are liars," said the writer of ancient days, and the revised version of modern times is, "All men—who take opium—are liars."

The writer—whose initial acquaintance with this question dates back nearly two decades, and whose professional experience for several years has been exclusively devoted to a large and enlarging clientele of this class—has long held this opinion to be a mistaken one. Years ago he wrote—"Clinical Notes on Opium Addiction," read before the Kings Co. Med. Soc., 16th January, 1883—"Nor do we share in the opinion, largely held, that no reliance is to be placed on the word of opium habitués. That the habitual use of opium, in many cases, does exert a baneful influence on the moral nature we are well aware, but we also know that in the ranks of these unfortunates are those who would scorn to deceive, and whose statements are as worthy of credence as those upon whom has not fallen this blight." Increasing attention to this topic has only confirmed that belief, and the recent statement—unwarranted and untrue—of a medical writer and teacher, that "no morphia habitué can be depended on to tell the truth," with the courteous invitation of your honored President to present you a paper, has prompted me to offer some thoughts on this subject—the result of observation, reflection and applied common sense.

Putting the query—why do men take opium?—the answer to day is that made nearly twenty years ago by Dr. Joseph Parrish, Pres. Amer. Assoc. for the cure of Inebriates—"men take it for a physical necessity." In an experience covering the history and treatment of hundreds of cases, I have noted only two exceptions.

Let it be distinctly understood that my remarks apply only to the better class of habitués, who have become such by force of conditions beyond control. With those who, viciously indulgent and lacking alike in principle and purpose, take opium from mere sensual desire, we have nothing to do.

This physical necessity, the great genetic factor in an opiate using, it need scarcely be said, has its rise in painful disorder of body or mind. For this opium in some form is given, which, when the legitimate need for its action is ended, entails a demand for continued taking that will not be denied.

The larger share of responsibility then rests on the medical man who prescribes—very properly it may be—this valued drug, though the main measure of his responsibility depends not on the initial using, but upon the case being dismissed without full thought as to the ultimate result of the opiate taking, and with a neglect to warn the patient against the danger of continued using, and insisting upon—giving to this his personal attention—the entire narcotic disusing when the proper need for its taking is ended. Vide "The Genesis of Opium Addiction," *Detroit Lancet*, 1884, and "The Responsibility of the Profession in the Production of Opium Inebriety," *Med. and Surg. Reporter*, 1878.

Granting this correct, on what principle of equity or right can one be held accountable, and so culpable, for his use of the drug when, unaware of its ensnaring power, and, confiding in the counsel of his medical adviser he avails himself of the relief it affords?

Another and most important auxiliary factor obtains in these cases—one of which the laity knows little or nothing, and the profession appreciates less than it should—and that is the power opium possesses to create a necessity of its own. Of this, I venture to assert that no one, other than the subject of a painful personal experience, or of large observation, can form a fully adequate idea. The writer has been studying opium and opium habitués for more than sixteen years, with an annual experience, of late, as regards number of cases, that is probably unequalled in this country, and yet he stands more and more in awe of this peculiar power with every case that comes under his care.

Granting a painful physical necessity, and the daily or semi-daily use of opium—especially morphia, subcutaneously—for a few weeks or months, and there are few, if any, who can withstand the ensnaring, enslaving power of this drug. Men stronger of brain and brawn than we have gone down before it. I have known a superbly athletic specimen of physical manhood, able to resist the wintry rigor of a polar expedition, succumb to the power of morphia in less than a month. I have seen a man so generously endôwed that he survived the horrors of Salisbury when the death rate averaged eighty per cent., go down before the same resistless power in four weeks. It was my pleasure to see this gentleman recover, and take the lecture platform to tell of his bondage and escape, and this is what he said:

"I proclaim it as my sincere belief that any one afflicted with neurotic disease of marked severity, and who has in his possession a hypodermic syringe and morphia solution, is bound to become, sooner or later, if he tampers at all with the potent and fascinating alleviative, an opium habitué. The first dose is taken, and mark the transformation. This overmastering palliative creates such a confident, serene, and devil-may-care assurance, that one does not for once think of the final result. The sweetness of such harmony can never give way to monotony. Volition is suspended. You may not think of it when the pain for which it was taken subsides. But when distress supervenes you go at once for the only balm that abounds in Gilead, and every additional dose is but another thread, however invisible, of which the web is made that binds us fast as fate."

If this be true—and it is true—what justice is there in the charge that these unfortunates continue the use of opium from an innate propensity to evil, or a merely vicious desire? What right have we to set ourselves up in judgment to note the beam in our brother's eye, when the only reason it is not in our own—when the only reason you and I are not opium habitués—is because a kind Creator has so conditioned us that this physical necessity, and consequent opiate need, does not, with us, obtain?

Having thus touched upon the etiology of this disorder, let us reason together regarding the special ethical point involved, and note the reason—if reason there be—for the commonly accepted idea that all men who use opium are liars. While admitting that the habitual need and use of this drug does, in many cases, warrant such assertion, I hold that the leading factor in this moral obliquity is the principle of self protection—the habitué's desire to shield himself from that censure which the prevalent opinion—uncharitable and untrue—that he is simply the victim of his own vicious indulgence, involves.

There are various proofs that this holding is correct, and, too, without resorting to the opinion held by Lahr, Fiedler, and some others, that opium habitués are the subjects of a mental alienation, both in the creation and continuance of their addiction, and therefore absolved from culpable wrong—an opinion in which I do not share. Nor do I believe, for reasons given, with another German observer, that "the morbid craving for morphia ranks among the category of other human passions, such as smoking, gambling, greediness for profit, etc.," for if this were true, the impulse to protect one's self would not so largely prevail.

The opium habitué realizing that he is looked upon as one who has given himself up to a vicious habit, a habit in which he persists from mere desire to enjoy the pleasures of opium—pleasures which, be it ever remembered, soon give place to its pains—and so liable to the censure which a vicious indulging involves, is impelled—by a feeling common to us all of guarding our good repute—to yield to the protective temptation to untruth.

But to this there are numerous exceptions, for many a captive to this drug, though well nigh crushed by his captivity, and that "cruelty of ignorance," which the unjust reproaches of should-be friends entails, still refuses to seek refuge behind such subterfuge, and scorns to tell a lie.

And do we not note this same impulse to deceit in most non-habitués who, lapsing from the right, make effort to avoid the sequence of their sin? Does the swindler always confess his swindling? Do the thieves, the forgers, the rascals of any degree, never deny their wrong doing? And while, in these cases, such double wrong may be the outcome of a general depravity, that, of itself, tends to prove that if the pernicious effect of opium in this regard were due solely to its baneful effect upon the morale in general, we should note the same tendency to lying along the various lines of life, whereas, it is a fact that on any question other than one involving his opiate taking, and consequent accountability, the habitué may be, and often is, a very prototype of truth.

What is the bearing of this question on the medico-legal status of these cases? If they be held culpable for the inception and furtherance of their condition, whatever outcome there may be affecting the jurisprudence of their action, must, from such erroneous view of the situation, fail of that legal justice which a correct appreciation of their case demands.

The writer was recently called upon to testify in the case of a physician who had been under his care for treatment of narcotic inebrity. This gentleman was the subject of delusions and hallucinations, so marked, that, in my opinion, he was not accountable for his conduct. Suit for separation was brought against him, and the referee's remarks during the trial, and his final decision, were in keeping with the belief that the defendant was responsible for the consequences of his alienation.

Again, a right appreciation of the status of such patients will lessen the labors of the doctor and the lawyer in their legal aspect, and remove the risk of failure to determine the true physical condition of the habitué where the question of narcotic taking is the leading issue in the case. To illustrate. Granting a general acceptance of my assertion that the class to which this paper pertains are the subjects of a disturbed organism, beyond their control, and for which they are blameless; and granting an appreciation of this belief by the patients themselves, then their main motive for concealment will be removed, and no more reason for untruth exist than if they were the victims of any other functional disease.

Again, the present general opinion of these patients is such that once a case comes into court to settle the question of an opiate using, the defendant, desirous of protecting himself, by denying his drug taking, makes it essential that evidence be secured to disprove his statement, and if certain signs be wanting, the habitué may quite outwit the medical expert. The writer noted a case of this sort last summer. A lady, cultured and refined, who had fallen a victim to morphia years before, and who was party to a suit in court, was examined by two well-known female physicians of this city, who, failing to apply the one infallible test of an opiate using, testified that she was not an habitué. They were mistaken—the lady was taking morphia, though she has since recovered. The point involved, to spare the chagrin of such an error, is obvious.

Lastly, what is the trend of a more rational view of this question as regards the treatment of these cases? Reference has been made to the statement that "no morphia habitué can be depended on to tell the truth"—a statement so often at variance with the fact that it must be the outcome of an experience with the baser class of cases—and I submit the wrong of regarding *all* as liars because *some* fail to tell the truth; or, added evidence of the "cruelty of ignorance;" or, an unwarranted libel on a worthy class of unfortunates, who, Heaven knows, have enough to bear without loading them with the reproach such an injustice implies.

Nevertheless it is just such an opinion, and consequent lack of confidence in the honor of these patients that influences their management by some medical men. Looked upon as the victims of their own wrong-doing, or as unworthy the sympathy that should ever exist between physician and patient, or treated on the erroneous belief that such is the only proper method, they are consigned to the brutal ordeal of abrupt and entire opiate disusing, which, while it may end in the desired result, entails such suffering of mind and body as to be utterly inexcusable—because a more humane method will avail—except under conditions peculiar and beyond control.

I am well aware that such coercive measures are the only hope of cure in some cases, but I also know that such patients are not of the better class, and that, once the drug abandoned, the prospect of continued recovery is small, because they lack one of the essential requisites for a permanently good result—that is an earnest desire to be cured.

And the promise of good results from this better way in regarding such patients is more far reaching than on first thought might appear, for the ex-opium habitué forced to stem a tide of distrust—special, as to his cure, and general, as to the permanence of that cure—finds himself hampered in continued well-doing by the lack of that hopeful trust that would largely conduce to his good getting on.

In a recent letter from a lady who honored the writer with her care, nearly three years ago, she referred to the permanence of her recovery, and added—"but as I found it difficult to make every one believe this, much less acknowledge it in my favor, I resorted to the best means I could think of to establish corroborative testimony that *would* avail, and during *all* the time I have been in or near—the past two years, I have gone regularly every few days to a physician of prominence here, my old friend and medical adviser of many years' standing, and had him make every test he desired, placing on record my exact condition, and showing the real truth of the matter. I continue to do this, and intend to do so, and have let people generally know that such a record is being made. I need not tell you that I am proud of my victory. The struggle against ungentle and unfair judgment of those around you make a combination of overwhelming power against the reformed opium taker. It is there that the *real* conflict begins."

The writer's professional work among this class has long been along the line here noted. He has extended confidence—very rarely has it been broken ; he has asked for confidence, and the general result can be truly and tersely stated—increasing satisfaction and success.

And now, gentlemen, what are the conclusions of this whole mattèr? These.

Reason and right alike alike demand a more rational and correct idea as to the origin of the toxic neurosis we have noted.

This demand complied with—regarding such patients, with certain exceptions, as creatures of conditions beyond control, and so no more culpable than the subjects of other functional disorder—will be most helpful against the protective temptation to untruth.

The medico-legal status of such cases will then be more in keeping with advanced forensic medicine.

The medical care of these cases will tend to a more humane method, with a larger promise of good results, both near and remote.

It will, too, be likely to lessen the increase of habitués, and the number now existing, for a more correct idea as to the genesis of this disorder will prompt medical men to greater care in avoiding the cause, while many a patient—who now shrinks from disclosing his misfortune—feeling he is not denied the charity his case deserves, and that he can command resources both helpful and humane, will be impelled to avail himself of the aid that scientific treatment can surely extend.

314 State Street.

A CASE OF SPINA BIFIDA.

BY JAMES W. INGALLS, M.D.

Presented to the Brooklyn Pathological Society, April 12, 1888.

On September 25th, 1888, was called to attend Mrs. H. in confinement. Patient was a primipara about twenty years of age, and a native of Mexico. Both she and her husband were free from any deformity, and had always enjoyed excellent health. Duration of pregnancy about nine months. Upon examination, I found the breech presenting. Labor progressed favorably, and nothing occurred worthy of special note, except that about half an hour before delivery, while making a digital examination, I discovered over the sacrum of the child a loose flap or fold of tissue, the nature of which at that time I was unable to satisfactorily determine.

After delivery I found the following condition: Over the lumbosacral region were two flaps, each two inches and a half long and about an inch wide; the outer borders were free, the middle portions of the inner borders were attached over the spinal column, and at this point of attachment there was an opening which communicated with the spinal canal. This opening was about large enough to admit the tip of the little finger. The anterior surface of the flaps was simply a continuation of the integument, the posterior surface was a continuation and expansion of the membranes of the spinal cord. The edges of these folds were straight and showed no signs whatever of having been torn or lacerated. There was atrophy and complete paralysis of both lower limbs. No other deformities existed. Flaps were placed in close apposition over the opening into the spinal canal, and upon them was put a thick compress, held in place by a wide bandage. The child continued to do well until the morning of the fourth day, when convulsions developed, and death took place in a few hours.

Dissection showed that there was a fissure of the spinal canal extending from the second lumbar vertebra down to the sacrum, the laminæ being absent. Both sciatic nerves were given off in the usual manner.

THE BROOKLYN MEDICAL JOURNAL.

EDITORIAL.

THE FINANCIAL RESULTS OF MEDICAL PRACTICE.

The medical men of the Bay State have been treated several times during the past decade to the mournful story of the meagre financial results from a life-long practice of medicine in that commonwealth. The detailed cases, narrated by Dr. Cotting, were pitiful enough, for they were proof that a faithful, conscientious and skillful medical career could find little laid aside for the "rainy day" of personal illness or the vacation for the tired brain and body, or the reposeful life of a physician's family when death had closed in on his labors. In the same strain Dr. Jeffries, in his late annual address before the Massachusetts Medical Society, proclaims that "no man has made a fortune as a physician, I mean no one ever paid his expenses and laid by at interest enough to live on through the practice of medicine."

This breathes in the atmosphere of complaint as if the profession of medicine were exceptional in life's vocations; as if it, alone of all the lines of work, did not lead to financial results where "enough to live on was laid by at interest." It is very pertinent to ask, in what pursuit in life inheres that tendency to make the laborers therein independent of labor? It is equally pertinent to ask, where is there an instance, in the history of labor, where a man, following the duty common to his fellow workers and relying on his own unaided hands and brain, ever acquired the competency to live, in his accustomed sphere, independent of labor? Dr. Cotting's instances of the poverty of medical men are pitiful, but they are duplicated in the ranks of the promoters of literature, art, science and philanthropic work through historic time and will be multiplied to the end. Great wealth is the possession of but very few and, on the lines of legitimate industry, is always the result of combination and the use made of the labor of others. In the early part of the century, Mr. Astor founded a fortune by buying up pelts from the trappers of the Northwest. Had he depended on what his own hands could have done, his old age would have found him drying his skins and frying his bacon with his own hands in his forest cabin. Mr. Carnegie to-day, utilizing the labor of miners in iron and coal and giving direction to the skill and toil of a multitude of mechanics, is still adding to his fifty millions. Had he depended on the limitations of his own brawn, he might still each evening be washing the grime from his horny hands under the faucet in the hallway of his tenement house lodgings. These great possibilities of combination are in the genius of commercial enterprise, though they are realized by few. They are foreign to the genius of labor where combination is impossible, and where the labor is of such a character that there is no monopoly of skill and many can accomplish it equally well. A medical man's labor is limited by what he can himself do, personally and unaided. He can neither delegate nor superintend. His income is limited by these personal conditions, modified only by the possession of some exceptional skill and the accidents of popularity or environment. The engrossing character of his occupation hinders him from the experience that justifies outside speculation with acquired capital and restrains him from participation in outside ventures which require freedom both of time and thought. He cannot well add another string to his bow.

The results of combination in trade and the income from professional labor are issues from distinct and opposite sources and have no right to be compared or made the subject of invidious reflection. A number of lawyers, each an expert in a special department, may form a partnership, occupy a commom office, each helping the other, the emoluments going to the common fund. This is a sort of combine. But the time is not yet ripe, and probably will never come, for the incorporation of a great Medical Trust, with the names of a specialist in eye, ear, throat, nose, lungs, liver, sphincter ani, corns and fallopian tubes, and so on to the minutest subdivision, with the addition of some general practitioners and apothecaries, displayed around the casings of some common front door, to scoop in the community and pool the receipts on a graded tariff. Trade is essentially selfish and works for the individual. "If you don't work for number one, number two will be working for you." The accumulation of money is neither end nor contingent in professional life. The pursuit and application of medical science are on the higher level with the learning of jurists, scientists, educators and literateurs, whose mission is the unselfish search for knowledge for the immediate benefit of mankind and the advance of civilization.

While it is true that very few in any calling "lay by at interest enough to live on," a very small number of that few do actually retire from active work and live on that interest, and this for two reasons: First, a man in successful professional life is in receipt of an income which enables him to live in luxurious surroundings, gratify tastes and enjoy recreation, which income, considered as interest, would represent a capital sum exceptional even among the results of successful trade, stock gambling or railroad wrecking. Such a man, and he is one of many, could live on what he "has laid by at interest," if he saw fit to live in less luxury and sacrifice the gratification of tastes which have been cultivated and become necessary to his comfort. He could live on his interest, but he does not care to live in idleness. On the other hand, the conditions of a cultured life are of an ever widening horizon, and it is characteristic of medical men that their intellectual sense is inquisitive, keen, appreciative and alert in their own sphere of action, less satisfied with what is and more anxious for better results, beyond the genius of any other professional life, and this for the distinctive reason that every new discovery in medical science promotes accuracy in the application of medical art. Working becomes a passion with medical men; the more they know the more eager they are to work. This passion is not to "lay by at interest enough to live on."

It is quite in the sentiment of medical addresses to bewail the profession as ill-paid, and that, for a learned and self-sacrificing body of men, its labor and accomplishments are very inadequately rewarded. The exact contrary is, probably, very much nearer the truth. There are many learned men in the profession and there is a wide range of special learning which is the common property of the profession, and all are more or less adept in the use of agencies of the art. There is, likewise, a vast amount of patient and uncompensated care given in the routine of practice, which is a natural outcome of the practice of the medical art. It would be absurd to claim the diploma as representing a liberal education or even high special attainments, as it would be ridiculous to assert that a dispensary patient regularly received the attention given to the German Kaiser or General Sheridan. There are instances of failure and poverty among medical men, but when the doctors in the country stand to the population in the proportion of 1 to 580, the assumption is that they have become needful, each to his 580. Doctors have many book charges that are not collected. Laborers are swindled by their bosses, and every business man meets his unlucky customers; the parish gets behind with its rector. The doctor is no worse off than the rest, and besides he has no salary list, and no accommodation at the bank to make good.

Most men are discontented, and the want of contentment is just as querulous with the cosmopolitan reputation that unblushingly pockets a double eagle for a few raps on the thorax as with its suburban and obscure double that explores a whole chest half an hour for a dollar. The latter pays a shilling to the village blacksmith to reset a shoe, and the former hands over eight dollars every time the farrier looks at his team. Discontent goes with a misfit, and Depew told the Syracuse students that "misfits were everywhere and were always cheap." It is doubtful if, upon the whole, there are in any walk in life such an unbroken line of splendid fits, the man to his duty and his clientage, as in the medical profession. It is not to be doubted that medical men, each to his location, his culture, his taste and his instincts, are better housed and clothed, more liberally supplied with the machinery of their technique, have greater demands on their purse in the interests of charity and reform which are duly met, have better educated families, have longer and more frequent opportunities for enjoyment which are not wasted, than can be counted item for item on the balance sheet of the average worker in any other profession or occupation. And these are the proofs of financial success, and they put aside the plaint that because the doctors do not "lay by at interest enough to live on" they are an ill-used class of men. The community pays liberally for being taken care of, and it ought to. The medical man's entire time is taken up in acquiring the experience to exercise prompt judgment in emergencies, and this is precisely what the community pays for and is far from niggardly in the payment. Experience, needful to prompt judgment, is worth more than day's wages or marginal profits, and this the community recognizes, and its estimate on the value of this experience is generally just. It may not be invariably accurate, but a doctor's annual cash total is a very liberal estimate of what his individual experience is worth to the community. If the doctor does not "lay by at interest," it is not because he does not receive enough, but because his relations to life make a free expenditure of money a necessity. He is at a certain disadvantage with a fair share of the people in being compelled to pay his debts. An excellent physician who is also a bohemian or with loose ideas as to honorable obligation, would be a nondescript. He is a fixture in the community with an open reputation, and it is proof of his liberal income that he is able to make and sustain that reputation.

THE OPEN STREET-CAR WHISTLE.

The open street car is in its mid-career for 1888, and the fiend of the whistler is on the vertex of successful practice. The stranglers of the Orient were an occasional incident in that sunburnt civilization as compared with the death-dealing, pestilential prevalence of the Brooklyn open street-car conductor, literally "armed to the teeth" with his offensive weapon, out of whose depths, impelled by æolic volumes from jerky and gigantic costo-diaphragmatic spasms, issue the ear-splitting and nerve-rending combination of fog-horn and prolonged rifle-crack. From stable to terminus and back, circulating along the outer step, holding on to the uprights with extended arms, facing forever the five-cent and helpless "fares," two to four inches of potential reed or metal protruding from his embracing lips, like an ill-placed proboscis on a witless pachyderm, he summons the driver to screw up his brake and arrest his sportive team for a fare to unload, or to reverse the process for the temporary torture of more victims in hoisting in of other patrons of the line, and the shrill horror of his whistling signal, right in the faces of the passengers, is made more agonizing by the uncertainty of when and on whom it will discharge its blast, being forever ready for action, like the lance in rest of the jousting knight. It would be easy to aim this calliope at the curbstone or the empyrean, but this regard for the passengers' tympanum disturbeth not the peaceful slumber of the tramway directory, whose shibboleth is the Vanderbilt curse of "the public be ——." But sadder than the disregard of common-carriers for public comfort is the unearthed conspiracy of the otologists with the ill-paid conductors on the horse-cars. For some years this specialty throve on the otitis acquired at the bathing-houses at Rockaway and Coney Island, but the public discovered that a little cotton in the meatus was the needful prophylactic, and otitis, as a source of revenue, dwindled to the starvation point. Again, and for a time, the horn of plenty overflows in the otologist's operating room, and his commissions to the car conductors promise to put them soon on a plane with the diamond-bedecked shirt-fronts of the average hotel clerk. It was said that so possessed was a certain London specialist with the operation of tonsillotomy that these amputated glands were each morning shoveled out of his office by the basketful. There are compensations all through life, and the hordes of cash boys, whose occupation vanished with the introduction of mechanical carriers into the great drygood bazaars, now find ample and continuous employment in sweeping out the heaped up fragments of shattered ear drums from the infirmaries of otological specialists. Verily, this deal among the ear men with the whistling open car conductors for the embezzlement of the community deserves the most summary and high-handed reprobation. There is but the faintest justification for such combination in the new code, but even that cannot fairly be pleaded when the integrity of the community's ear is imperilled. A proper corps d'esprit would impel to the conservation of a professional brother's prosperity, but even that laudable sentiment must have subordinate place when the profession at large, who are the conservators of society, see that society is likely to turn a deaf ear to the varied forms of human plaint, and all owing to the men who can neither stop or start an open car of a horse railroad without blowing out the ear drums of the community. The public is in peril and who shall be the Curtius to jump into the breach. The conductor cannot be appealed to. He is insensitive, and, besides, he is in authority. One cannot knock the beastly clarion from his lips' embrace: there would be the claim for assault and ejection for disorder. The directors are a weak reed; they dread a strike. Municipal ordinance would be vainly sought: workingmen have a union and votes. The police, even the finest, are not open to bribery: they are at home in a brawl, and noise is their normal condition of repose. The profession must interfere. Henceforth let the cry be "boycott the whistle." If it must exist, let the instruction be boldly posted at the starter's office: "Conductors must aim their whistles at the curbstones and not in the ears of the passengers."

PROMPT TELEPHONE SERVICE.

The telephone is too useful not to be treated properly. It is always an affair of two parties and each is in duty bound to be considerate of the other. The bell rings, it is answered promptly, and patience becomes well nigh exhausted before "central" succeeds in establishing the connection, and the time of the respondent is wasted. The reason for this rests on the thoughtlessness or selfishness of the one who makes the call. He rings and asks for a certain connection, and then hangs up his instrument, goes away to wait for a summons. In the meantime the respondent answers, stays by his instrument, "central" endeavors to call up the caller, perhaps through another office, the connection is often broken, and after much tribulation the connection is fully made. This is of very frequent occurrence and could be avoided, for the most part, by the caller staying by his instrument for the few seconds usually required to make the connection. There are occasional instances of bad management and some ugliness in the central office, but they are quite rare, and the service is very prompt. More delay and annoyance are caused by thoughtlessness of the users of the telephone than by any neglect of duty on the part of the operators at the central offices. One who is called up has a right to consider that he is wanted, and that promptly. It is the duty of the caller to be careful not to annoy the central office or waste the respondent's time. Moral: When you call, stay by your instrument till the reply comes.

OFFICIAL ORTHOEPY.

The Mayor has made his appointments to the vacancies in the Board of Education. The proper assumption is that they are all good men and true, able to read, write and cipher. It would be worse than libelous to give houseroom to the rumor that any member of this responsible Board ever "made his mark." One would be properly horrified at the audacity of the narrator of such a tale as the following: A member of a local committee entered the class-room as the teacher was conducting the recitation in spelling from the Reader. After listening for awhile, he intimated his desire "to give out a few words," which desire was politely acceded to, and the book handed to him. A number of words were correctly and promptly spelled, and he gave out the word "Egg-pit." One child after another was downed by the astute member until the teacher, in pity for her flock, suggested that the word was not in the lesson. Smiling disdainfully at her ignorance and presumption, he pointed his No. 11 forefinger to E-g-y-p-t. Tableau. The Directory for 1888 intimates that we live in a city of nearly 800,000 inhabitants.

PROCEEDINGS OF SOCIETIES.

THE MEDICAL SOCIETY OF THE COUNTY OF KINGS.

A regular monthly meeting of the Medical Society of the County of Kings was held at the rooms of the Society, No. 356 Bridge Street, Brooklyn, on June 19, 1888.

The meeting was called to order at 8.30 P. M., with Dr. Wallace in the chair. There were eighty members present.

The minutes of the previous meeting were read, and on motion adopted as read.

The Council reported favorably on the names of the following gentlemen: Drs. Sidney Allen Fox, George H. Treadwell, Fred. L. Goddard, Stanton Allen, Horace B. Scott.

The following gentlemen were declared elected members of the Society: Drs. Chas. S. Fischer, James L. Carney, Eliot Gorton, Heber N. Hooper, Henry H. Morton, Geo. B. Rockwell, Lewis S. Meeker.

The following gentlemen were proposed for membership:

Dr. J. Le Roy Tettemore, 128 Rockaway Avenue; graduated at L. I. C. H., 1881, proposed by Dr. J. H. Hunt and seconded by Dr. W. B. Chase.

Dr. Stanton Allen, 114 Montague Street, graduated at College of Physicians and Surgeons, 1881, proposed by Dr. Richmond Lennox and seconded by Dr. J. S. Prout.

Dr. James W. E. Roby, 115 Lee Avenue, graduated at Medical Department, N. Y. University, 1887, proposed by Dr. D. Myerle, seconded by Dr. W. M. Hutchinson.

Dr. Charles G. Purdy, 56 Pulaski Street, graduated at the University of the City of New York, proposed by Dr. Chase and seconded by Dr. Little.

The Secretary stated that the name of Dr. Stanton Allen was among the propositions for membership presented at this meeting, and also among those reported favorably by the Council.

He said in explanation that Dr. Allen's diploma had been sent to the Board of Censors and passed upon before his name had been proposed, in order that the diploma might not remain with the Censors till next September.

This was an infringement of the By-Laws upon admission of members, but if no objection was raised, the By-Laws would be waived in this case.

No objection was offered.

SCIENTIFIC BUSINESS.

The first paper of the evening, "On the Relation of the Bacillus Tuberculosis in Pulmonary Phthisis," was read by Dr. I. H. Platt, of Lakewood, N. J., and discussed by Drs. G. R. Butler, J. M. Van Cott, J. H. H. Burge, P. H. Kretzschmar and G. A. Evans.

The next paper was "A Case of Dystocia and Double Phlegmasia-dolens," by Dr. Lucy M. Hall. This was discussed by Drs. Dickinson, Thayer, Skene, Chase, Schenck and Harrigan.

A paper, entitled "Note on the Disinfection of Physicians' Clothing," by Dr. R. L. Dickinson, was then read and discussed.

REPORTS OF COMMITTEES.

The President called for the report of the Obituary Committees upon the late Drs. Chapman and Mitchell.

The obituary report of the late Dr. Chauncey L. Mitchell was then read by Dr. Burge, as follows:

Chauncey L. Mitchell, whose ancestors were of Puritan stock, coming to this country from Halifax, England, as early as 1635, was born in New Canaan, Connecticut, November 20, 1813. An excellent general education, obtained here and at Union College, Schenectady, was supplemented by a full course of study in the medical department of the University of the State of New York, better known as the College of Physicians and Surgeons, where he was graduated in 1836. The next twelve months were spent in the New York Hospital, and the succeeding two years on the continent of Europe. All who knew Dr. Mitchell intimately are so familiar with his studious habits that they need not be told that he never lost an opportunity for observation and improvement. This was true of him, not only during the period of his pupilage, but in all the fifty years of his active practice, five of which were in the City of New York. He came to Brooklyn in 1844, was admitted to membership in the Society of the County of Kings soon after, and was thrice honored by an election to its highest office. All the duties of his active life he performed with dignity and zeal. No one more than he enjoyed the uninterrupted confidence and affection of this community. Among his friends and patients were numbered the best of our citizens, and he is now equally missed in the profession, in the church and in the household. Dr. Mitchell was an earnest and devout believer in the Christian religion. His connection with the Church of the Pilgrims antedates the pastorate of the Rev. Dr. Storres, between whom and himself there was an intimate, personal and professional relationship for forty years.

Dr. Mitchell's powers of observation and discrimination and his exactness of verbal expression were so excellent, that we regret that he did not give more time to authorship. An article on "The Effects of

Ergot," "Labor Complicated with Disease of the Heart," and an occasional contribution to the journals, are all that we can find of his writings.

During the period of declining health, which occupied more than two years, Dr. Mitchell resigned many positions of responsibility, yet, at the time of his death, he was Sn. member of the Council of the Long Island College Hospital, member of the Amer. Med. Asso., Consulting Surgeon to St. John's Hospital, to L. I. Coll. Hospital and to the Home for Aged Men, a member of the New York Academy of Medicine, New York Co. Med. Soc., and Kings Co. Med. Asso. He was was also a life member and Corres. Sec't'y of the L. I. Historical Society. It is matter of record that he was once a member of the Medical Staff of the Brooklyn City Hospital, and that he also filled with honor the Professorship of Obstetrics in the Castleton Medical College.

In 1843, Dr. Mitchell married *Caroline*, daughter of Hon. B. F. Langdon; in 1857, *Frances*, daughter of Hon. Benjamin Wright; in 1875, *Kate*, daughter of Hon. J. M. Van Cott, of this city.

Dr. Mitchell's tastes were professional, literary, artistic and religious, but the centre of all was his own home. In the house which he had built more than forty years before, he died on the 8th of May, 1888, terminating a long career of untiring usefulness.

Mr. Chairman: In the preparation of this minute for the records of the Society, your committee have recognized the fact that they were appointed for this simple duty only. The pronouncing of a suitable eulogy belongs to other hands and to another occasion. We offer for your consideration the following:

Whereas, In obedience to the Divine Law the fully matured life of Chauncey L. Mitchell is ended on earth, and

Whereas, He was destined to fill a high position in the profession of medicine and as a citizen of this country, and

Whereas, He met all these requirements, fulfilled every duty, and discharged every obligation in such manner as only a highly cultivated, educated and honest man could, and

Whereas, When the end came, those who knew him best could truly say that he had left nothing undone to complete a noble, highly useful and honorable life;

Therefore be it resolved, That while paying this tribute to his memory we desire to express our high appreciation of his many virtues, and that while we deeply feel our loss, we also cherish his memory, and are grateful for the honor, dignity and advancement which his life's work gave to this Society.

Resolved, That we offer our deepest sympathy to his bereaved family, and that a copy of these resolutions be conveyed to them as a humble tribute to his superior worth.

All of which is respectfully submitted by your committee.

J. H. Hobart Burge, M.D.,
Alex. J. C. Skene, M.D.

The report of the Obituary Committee, as above, was accepted and committee discharged.

The Resolutions introduced by this committee were adopted as read.

NEW BUSINESS.

The Chairman read a communication from the Secretary of the Kings County Pharmaceutical Society, stating that the term of office of the two members of the Board of Pharmacy from this Society had expired, and asking that their places be filled.

The President.—As I understand it, our elections take place only at the end of the year, and if this communication is to be acted upon, it will be necessary for the Society to pass a special resolution authorizing the election of these gentlemen. If it is the desire that the Society pass such a resolution, a motion will be in order.

A Member.—I move that the By-Laws be suspended so that the election may be had this evening. Carried.

The President.—Nominations are now in order. The present incumbents are Dr. J. H. Hunt and Dr. C. E. De La Vergne.

A Member.—I move that the two present incumbents be continued in office, if it be the voice of this Society, until the annual meeting.

Seconded and carried.

There being no further business, the Society adjourned.

W. M. Hutchinson, M.D., *Secretary.*

PROGRESS IN MEDICINE.

PREVENTIVE MEDICINE.

BY ELIAS H. BARTLEY, M.D.,
Professor of Chemistry and Toxicology, and Lecturer on Diseases of Children, Long Island College Hospital, Brooklyn.

THE GERM THEORY A CENTURY AGO.

Under this caption the British Med. Journal for February 11, 1888, contains an editorial review of a pamphlet of 87 pages, published in 1788, and entitled: "*A Treatise on Fevers, wherein their Causes are exhibited in a new point of view, to prevent Contagion; and Putrid Sore Throat, Inflammatory Fluxes, Influenza, Consumptions, as well as the Low Nervous Fevers that terribly affect the Spirits, may be cured with ease.*"

The most remarkable part of the book is the speculative or explanatory part, consisting of an exceedingly ingenious argument, based upon the analogy of admitted facts, to prove that the cause of contagious fevers is some invisible noxious matter in the air. Of the intimate nature of this matter he says: Some consider it to be a sulphurous exhalation from the earth; but this cannot be, for, if so, acrid and sulphurous fumes would increase it, instead of checking or annihilating it. Another theory is that it is due to the products of putrefaction; but how can dead putrid matter ever get such activity as to work such astonishing results? It must therefore be something endowed with a more powerful activity than anything belonging to the mineral kingdom or simply putrefying matter, and must, therefore, be something actually living." He further concludes that these living organisms must have an existence independent of the body in which they are found. For this view, surprising and novel enough at first, loses some of its singularity, if we search for resemblances elsewhere. Now, just as it was well known that itch is due to the presence of acari, insects visible by the aid of the microscope, so close attention to these matters in numberless cases during many years, has proved beyond a doubt that the gaol distemper, putrid fever, plague, and infectious epidemics generally, proceed not from matter putrid in itself, but from invisible insects also, that, floating in the air at times, are lodged in the skin in immense quantities; feeding here in clusters, they produce pimples, pustules, etc.; for instance, the eruption of small-pox. He overlooks, or fails to mention, the possibility of their entering by the air passages or digestive system. "Medicines," he says, "which poison insects without injuring the constitution have always proved specific." These insects, which constitute contagion, are communicated by air, the raiment, as by contact. He admits that vegetables as well as animals suffer from the ravages of these animalcules. He believed that they originated from eggs and not *de novo*. He advises fumigations with sulphur and frankincense to destroy contagion in rooms, and shows that many diseases in lower animals are cured or prevented by the use of certain agents known to kill insects.

In summing up his theory, he says that, generally speaking, there are two sources of these animalcules. First, from subterranean sources, which operate in all sorts of weather and are accompanied by electrical phenomena. Second, from the surface of the earth, swamps, filthy lakes, stagnant ponds, etc. The eggs left on the soil develop in summer, and "the multitudes effluviate into air."

The essay is interesting to us because of the very clear foreshowing of a theory that we are apt to regard as the creation of recent years. It is a good example of the power of attentive observation and inductive reasoning, which is so seldom met with even in scientific medical men of the present day.

ALBUMINURIA A FREQUENT RESULT OF SEWAGE POISONING.

Dr. George Johnson, in *Br. Med. Jour.* for March 3d, gives the histories of four cases of albuminuria which he believes were the result of breathing sewer air. In addition to other diseases, the result of drain poison, the author has met with several cases of albuminuria which he believes can and does under continued exposure to the sewer poison, result in incurable disorganization of the kidneys. He thinks that, in the absence of other probable exciting causes of albuminuria, the possibility of sewer poisoning should be constantly borne in mind. It is needless to dilate upon the importance of discovering the exciting cause of a disease so serious in its consequences as nephritis. In each of the four cases cited, albuminuria and casts were found in the urine, and blood in two of them. In each case defective drainage was proven, and in two of the four an immediate improvement occurred on removing this cause. One proved fatal from suppression of the urine.

The author suggests as an interesting point, that amongst the various diseases resulting from drain poison, diphtheria is in a very large proportion of cases associated with albuminuria.

It would be interesting to know whether a large proportion of cases of diphtheria occurring in houses having defective plumbing suffer with albuminuria, than in houses where no such defect exists. If these observations are confirmed, we may learn from them something of the cause of the great fatality of scarlet fever and diphtheria in houses which contain defective drains.

SEWER-AIR POISONING.

The question of sewer-air poisoning has received no inconsiderable attention at the hands of sanitarians within the past few years, some claiming that it is a carrier of many of the contagious diseases, including malarial affections, while others have denied its harmful action in these respects.

The last class, in substantiation of their claim, point to the assumed fact that plumbers and those who work in sewers are not, as a rule, especially subject to the diseases generally attributed to sewer air. That plumbers are not exempt from troubles of this kind is attested by numerous examples. According to *Science*, an inquest was recently held in Liverpool, Eng., on the body of a plumber's apprentice who had been engaged in repairing pipes which connected with the sewer. Quantities of gas came through these pipes, and at the time the young man complained of pain and sickness, and died forty hours afterward. The jury rendered a verdict of poisoning by sewer air.

According to the *Sanitary News*, Dr. Vaughn, of the Michigan State Laboratory of Hygiene, claims to have found the specific germ of typhoid fever in the air of a soil pipe from the prison at Jackson, in that State, during an outbreak of typhoid fever.

The *Sanitary Inspector* for February and March, reproduces from the *Medical News* an article by Dr. Henry Hun upon this subject. Dr. Hun cites twenty-nine cases in support of his statements. The histories are those of non-contagious diseases, and therefore were probably cases of illness produced by non-infected sewers. He says: "In all of these twenty-nine cases there was an escape of a large amount of sewer gas into the air which the patients breathed; and at the time that the case was observed, it seemed extremely probable that the sewer gas was the cause of the disease.

"From the consideration of these twenty-nine cases, we may conclude that it is probable that the following conditions may result from sewer-air poisoning:

"1. Vomiting and purging, either separately or combined.

"2. A form of nephritis.

"3. General debility, in some cases of which the heart is especially involved.

"4. Fever, which is frequently accompanied by chills.

"5. Sore throat, which is frequently of a diphtheritic character.

"6. Neuralgia.

"These conditions may occur separately, but are frequently combined, and it is especially common for the fever to be associated with other symptoms of sewer-gas poisoning. Finally, in cases of sewer-gas poisoning, there is one group of symptoms which is almost always prominent, and these symptoms are: loss of appetite, drowsiness, extreme prostration, and a dull, unpleasant feeling in the head; and whenever this group of symptoms occurs, not as the result of an attack of acute disease, but as a chronic condition, we are justified in suspecting that the patient is exposed to sewer-gas infection."

EFFECTS OF FOOD PRESERVATIVES ON THE ACTION OF DIASTASE, PANCREATIC EXTRACT AND PEPSINE.

This subject has recently received experimental study at the hands of Dr. Henry Leffman and William Beam, the results being published in the *Analyst* for June, 1888.

The antiseptics selected were those which have been known to be used to preserve articles of food and drink. They were salicylic acid, boric acid, sodium acid sulphite (sodium bisulphite), saccharine, beta-naphthol and alcohol.

In the following experiments a solution of arrow root starch, 30 grains to the litre, was used.

To 100 c.c. of this solution was added 0.5 c.c. of maltine diluted to 50 c.c. with water.

The figures give the proportion of antiseptic to the whole volume of liquid.

Experiments with Maltine.

Antiseptic used.	*Amount.*	*Fahling's Solution reduced by the Maltose formed.*
None.	None.	245 cc.
Salicylic acid.	1 to 500.	No sugar formed.
" "	1 to 1,000.	" "
" "	1 to 20,000.	245 cc.
Boric "	1 to 1,000.	245 cc.
Sodium bisulphite.	1 to 1,000.	245 cc.
Sacharrine.	1 to 1,000.	18.5 cc.
"	1 to 500.	5.6 cc.
Beta-Naphthol.	1 to 1,000.	204 cc.
"	1 to 500.	174 cc.
Alcohol.	1 to 25.	245 cc.

Experiments with varying amounts of diastase showed that one part of salicylic acid to 1,000 of liquid prevented the diastasic action completely. Saccharine in the proportion of 1 to 1,000 prevented the formation of sugar when the proportion of diastase was 1 to 1,000 of liquid. When the proportion of diastase was reduced to 1 in 2,000, salicylic in the proportion of 1 to 3,000 prevented the formation of sugar. It seems, then, that the weaker the diastatic solution, the more is its action hindered by salicylic acid, saccharine, etc. Sodium bisulphite has little if any power of hindering diastasic power.

Experiments with Fairchild's Pancreatic Extract.

Antiseptic.	*Amount.*	*Fehling's Solution required,*
None.	None.	78 cc.
Salicylic acid.	1 to 1,000.	No sugar formed.
Sacharine.	1 to 1,000.	" "
Beta-Naphthol.	1 to 1,000.	78 cc.
Boric acid.	1 to 1,000.	78 cc.
Sodium bisulphite.	1 to 1,000.	80 cc.

The tests were made with 0.2 grams of the extract.

It seems from these experiments that salicylic acid and saccharine, in the proportions used, entirely prevent the action of pancreatic ferment upon starch.

In similar experiments with saccharated pepsine with hydrochloric acid, except that the temperature was kept at 105° F., sodium bisulphite and boric acid were without effect.

Saccharine and salicylic acid had a slightly retarding action. Beta-naphthol almost entirely prevented the action.

With pancreatic digestion of albumen the results were practically the same, but the retarding action of the salicylic acid and saccharine was not quite so well marked.

From these experiments it will be seen that salicylic acid prevents the conversion of starch into sugar under the influence of either diastase or pancreatic extract, but does not seriously interfere with peptic or pancreatic digestion of albumen. Saccharine holds about the same relation as salicylic acid.

Sodium bisulphite and boric acid are practically without retarding effect.

Beta-naphthol decidedly interferes with the formation of sugar by diastase, but not with the action of pancreatic extract on starch.

It almost entirely prevents both peptic and pancreatic digestion of albumen.

The bearing of these experiments upon the sanitary question of permitting the use of these preservatives in foods, is self-evident. Prof. Leffman says: "Their use is scarcely allowable under any circumstances, and certainly only when the nature of the preservative and the amount is distinctly stated." The use of saccharine as a sweetening agent must be looked upon as deleterious to health, and ought to be forbidden by sanitary authorities.

MILK AND SCARLATINA.

In a recent number of the JOURNAL, we published an abstract of the reported investigations of Mr. Power, Dr. Cameron and Dr. Klein of a disease among cows, which they believed had caused scarlatina among persons using the milk. The conclusions reached by these gentlemen seemed so startling that the Agricultural Department of the Privy Council began an investigation of the disease. The investigation was given into the hands of Dr. Cruikshank, whose reports are published in the *British Medical Journal* of December 17, 1887, and January 21, 1888.

We have only space here to reproduce the conclusions reached by Dr. Cruikshank, which are as follows:

1. The nature of the contagium of scarlet fever is unknown.
2. The micro-organism regarded by Dr. Klein as this contagium is the *streptococcus pyogenes.*
3. *Streptococcus pyogenes* is found sometimes in company with *staphylococcus pyogenes aureus*, as a secondary result in scarlet fever and many other diseases.
4. A streptococcus was first observed in scarlet fever by Crooke, later by Löffler, Huebner and Bahrdt; but its exact relation to scarlatina, and its undoubted identity with the streptococcus from pus and puerperal fever, was definitely established in 1885 by Frankel and Freudenberg.
5. Both the Wiltshire and Hendon cow diseases were called cow-pox by the people on the farms.
6. Both diseases correspond in their clinical history.
7. The ulcers on the teats correspond in naked eye and microscopical appearances, and the latter vividly recall the appearances of cow-pox.
8. Calves inoculated from the discharges of the ulcers are similarly affected.
9. *Post-mortem* examination of such calves, or of calves inoculated with streptococci isolated from scarlet fever cases, show similar appearances.
10. The *post-mortem* appearances in such inoculated calves are the result of septicæmia.
11. There are no specific viceral changes in cow-pox, apart from complications or coincident affections.

To the above criticism of Dr. Klein's investigation of the Hendon cow disease, this gentleman claims that Dr. Cruikshank studied a different affection, and that the organisms were not the same. It is insisted upon by Dr. Klein, that Dr. Cruikshank's conclusions were the result of studying cow-pox and not the peculiar disease he described as the Hendon cow disease.

THE CAUSE OF DEATH IN PHTHISIS.

Dr. R. W. Philip has made an experimental study to determine the cause of death in phthisis. The results of his study are published in the *Brit. Med. Jour.* of Jan. 28th, 1888.

His experiments were conducted with an extract prepared from fresh sputum from phthisical patients, as follows:

The sputum was treated with alcohol, put in a sterilizer, and heated to 37 to 40° C. for some time, filtered clear, and evaporated at a low temperature until the alcohol was expelled. This extract was used for subcutaneous injections in frogs, mice, and rabbits.

This extract was found to possess very marked toxic properties upon these animals, which manifested themselves by a depression of the higher nerve centres and of the heart. The depressant action upon the heart seemed to be exerted through the cardio-inhibitory mechanism, and is more or less completely antagonized by atropine.

The toxic principle he believes to be the result of the growth of the tubercular bacilli, and allied to the ptomaines. He found the quantity of the substance to be extracted from the sputum to be proportional to the abundance of the bacilli present in it. These observations are in accordance with the observations of various experimentors with other pathogenic organisms, and with the theory that seems to be gaining ground that immunity is the result of such by-products of the growth of these organisms.

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SURGERY.

BY GEORGE R. FOWLER, M.D.,

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CONTRIBUTIONS TO THE STUDY OF MYXŒDEMA FOLLOWING TOTAL OR PARTIAL EXTIRPATION OF THE THYROID BODY.

J. L. Reverdin (Congrès Francais de Chirurgie, 2 session, Paris, 1886.) This disease, following frequently in the after-history of cases of extirpation of the thyroid body, and called by Kocher, of Berne, cachexia stumpriva, was first described by Reverdin, and by him called "operative myxœdema." His description of this disease coincides in general with the views now generally held, although we find some not unimportant deviations from Kocher's conclusions; for instance, the latter observed the disease twenty-four times following thirty-four operations, it appearing to attack by preference those who had not attained their full development. On the other hand, R., basing his experience upon copious statistics, believes the disease is comparatively rare, following upon operations of the thyroid in only twenty-seven per cent. of cases. In his experience, it likewise preferably attacks children and young persons, but that it occasionally fails to occur after complete thyrotomy. Further, R. has observed a milder form of the disease, differing essentially from the graver type of the affection, which latter invariably tends progressively to a fatal termination. In the milder form, the disease is described as oscilating between relapses and improvement, lasting for years, cure sometimes resulting. Several cases are detailed supporting these observations. In two of these, it was supposed that the thyroid had been extirpated in toto, but it was subsequently discovered that a small portion of the gland had remained. Three cases are worthy of especial note. In these, after partial extirpation, in one the right lobe, and in two the left having been removed, an imperfect form of the disease made its appearance after several months. The characteristic signs, such as swelling of the face and limbs and hesitancy of speech and of muscular movements were absent; while the other symptoms, such as general weakness, pains in the limbs, chest, and head, greater or less loss of memory, chilly sensations, reminded one distinctly of the more complete form of the disease. In all these cases slow improvement followed. Another case is worthy of notice from the fact that, two months after the operation, the remaining lobe had so atrophied as to be scarcely distinguishable. Cases of this atrophy following partial extirpation have been observed both in Germany and in England.

UPON LUXATION OF THE HEAD OF THE RADIUS FORWARD.

Raestock (Deutsche Militärärztl. Zeitschrift, 1887, p. 331) has, by means of experiments upon the cadaver, shown that this accident occurs in forced pronation while the radius is resting upon the ulna at the point where the former crosses the latter, the ulna acting as a fulcrum. The head of the radius is pressed against its capsule and tears the latter. More rarely, the accident may occur in forced supination, by pressing the bone against the posterior edge of the ulna, the head of the radius being luxated through a rent made by a rupture of the external lateral ligament between the outer and inner sides; upon pronating the hand, this outward dislocation is converted into a forward one. The annular ligament is either torn or else the coronoid process of the ulna is broken. In either case the interposition of the annular ligament in the fold of the joint becomes an obstacle to reduction. In the experiments as detailed, great force was necessary in the production of the luxation.

Should active and passive movements, manipulation, etc., fail to remove the obstacles to reduction, the author advises a resort to secondary resection of the displaced head of the radius; this, with proper precautions, is certainly a most wise and rational procedure.

CHOLECYSTOTOMY, WITH LIGATURE OF THE CYSTIC DUCT.

Zielewicz (Centralblatt f. Chirurgie, No. 13, 1888,) proposes in addition to the so-called "ideal" method of Spencer Wells, that of suturing the gall bladder to the abdominal wound, to ligate the cystic duct, in order to insure the patient against the return of the biliary lithiasis. The only case in which he has tried it was one in which an attempt was being made to perform cholecystectomy, but the adhesions between the gall bladder and liver were so dense and unyielding as to render the removal impossible, on account of severe hæmorrhage. He therefore passed two ligatures around the cystic duct and divided the latter between them. The gall bladder was then fastened to the abdominal wound, incised and emptied of its contained calculus and biliary secretion. The patient made a good recovery, a fistula remaining, of which the writer says, that "after a time it was almost closed."

The author claims for this operation the following advantages: 1st. Rapid healing without a resulting fistula. The gall bladder is practically removed from the organism. With appropriate after treatment, its secretion soon ceases, and it becomes obliterated. 2d. The operation is simple and less dangerous than cholecystectomy, and gives the same results.

In contrasting this operation with cholecystotomy, it may be said that the latter simply aims at removing the existing calculi, and makes no provision against the recurrence of the same. Where the "natural" method of Bernay is adopted, and the gall bladder dropped back into the abdominal cavity after suturing the incision made in its walls for the removal of its contents, in case of a recurrence of the disease, the entire operation must be repeated. In the "ideal" method of Spencer Wells, only an incision need be made, in such an emergency, at the site of the first operation. Troublesome fistulæ, however, are apt to remain.

In cholecystectomy, on the other hand, hæmorrhage from breaking down of adhesions between the gall bladder and the surface of the liver, it is claimed, is a frequent and troublesome complication. It is claimed by Thiriar, however ("De l'intervention chirurgicale dans certains cas de lithiase biliaire," *Revue de chirurgie*, 1886, No. 3), that cholecystectomy is a less dangerous operation than simple cholecystotomy. Again, by Bardenheuer, that hæmorrhage from the liver can be readily arrested. The abstractor witnessed an operation in which the liver was accidentally wounded and the resulting hæmorrhage arrested by the thermo-cautery.

Hertin, a French naval surgeon, in 1767, after experiments made upon dogs, proposed, in wounds of the gall bladder, extirpation of the latter, after ligature of the cystic duct. In these experiments he demonstrated the feasibility of the operation of cholecystectomy upon the lower animals, at least.

Campaignac, in 1826, proposed ligature of the cystic duct, with partial resection of the gall bladder (Journ. hebdom. Bd. ii, 1829). K. Zagorski has recently attempted this latter procedure on dogs, with fatal results (Przegl. lekarski, 1887, No. 48). Nevertheless, to Zielewicz belongs the credit of being the first to demonstrate, by its successful performance, the feasibility of combining in man the two operations of ligature of the cystic duct and cholecystotomy with suture of the gall bladder to the abdominal wound. Upon further trial the operation may prove to be not only feasible, but to follow out a rational indication with relative safety.

SUPRA-PUBIC PROSTATECTOMY.

A. F. McGill, F.R.C.S. (*The Lancet*, February 4, 1888). The operation consists of two parts: (1) The opening and drainage of the bladder; and (2) The removal of the prostatic valve which prevents the egress of the urine. A full sized silver catheter, curved according to the nature of the case, is passed into the bladder, its contained urine withdrawn and its cavity washed out with a warm saturated solution of boracic acid till this is returned clean and unchanged. The usual rubber rectal bag is now introduced and filled with fourteen ounces of water. The bladder is now rendered prominent by injecting it with a sufficient amount of warm boracic acid solution. The catheter is retained in the bladder, and the fluid with which the latter has been distended, prevented from escaping. The usual median supra-pubic incision is now made, the bladder exposed and made to project into the abdominal wound by depressing the catheter. A large curved tenaculum is now passed transversely into the bladder, touching as it goes the point of the catheter. An incision is now made longitudinally through the bladder wall, the fluid being prevented from escaping by plugging the opening with the finger. The bladder is now seized with nibbed forceps, and applied on each side of the incision, the catheter is withdrawn from the urethra and the bag from the rectum, and the first part of the operation is complete. The interior of the bladder and its neck is now examined, in order to ascertain the exact nature of the prostate enlargement. A pedunculated middle lobe can be removed with the curved scissors, but in the case of a sessile middle lobe, this must be assisted with the finger and forceps. The "collar" enlargement is removed with greater difficulty. In order to insure the patency of the urethra, it is advised to pass the forefinger into the canal as far as the first joint. It is claimed that the hæmorrhage is not excessive. The operation completed, drainage is effected by passing a rubber tube out of the abdominal wound, the latter being partially closed by a point or two of suture. The tube is removed after forty-eight hours.

The author's experience is limited to five cases, four of which have proved successful, while the fifth case is still under treatment. He claims that, in cases operated upon early, before diseased bladder or surgical kidney have developed, a radical cure may confidently be expected.

Two objections to this method occur to us: (1) Whoever has performed or witnessed supra-pubic cystotomy, either for the purposes of removal of a calculus or a neaplasm from the interior of the bladder, must have been struck by the difficulties in the way of a thorough appreciation of the condition of its posterior wall low down, or of the cystic neck. Unless specially devised instruments are available for each particular form of prostatic enlargement, it would seem to be a matter of great uncertainty as to just how much of the growth is removed. (2) Until satisfactory granulation of the wound surfaces has been accomplished, drainage, to be efficient, must be facilitated by placing the patient upon one or the other side, a position difficult to maintain, particularly in old people.

RESEARCHES UPON THE VAGINAL PROCESS OF THE PERITONEUM AS A PREDISPOSING CAUSE OF TENDENCY TO EXTERNAL INGUINAL HERNIA.

H. Sachs (Archiv. f. Klinisch. Chirurgie, Band xxxv., p. 321–372) advocates quite decidedly the view, basing his opinions upon preparations of the spermatic cord examined and upon microscopic examinations of cross sections of the latter, particularly as to the relations of the vas deferens and the vessels to the vaginal process of the peritoneum, that the latter is formed before the beginning of the descent of the testicle rather than as a portion of the abdominal wall formed or dragged into position by the testicle in its descent. In proof, he alleges that he has always found, in cases of incomplete descent of the testicle, that organ upon the posterior wall of the vaginal process, and not on the floor of the same. In females, the formation of the canal of Nuck cannot be said to be due to any dragging.

The entrance to the opening of the vaginal process is found covered by a valve arrangement, and the same is particularly noticeable in the canal of Nuck. The opening of the vaginal process can be caused to gape through a spreading out of the mesentery attached to the ilium or that of the sigmoid flexure. The diameter of the opening is, in general, greater on the right side than on the left in boys, while in girls this difference is not observed. Further, the different forms of the incompletely obliterated opening of the vaginal process agrees with the most frequently occurring forms of the hernial sac in inguinal hernia. The relations of the vaginal process to the elementary parts of the spermatic cord are not constant. On the contrary, the relations which the smooth muscular structures of the cord bear to the vaginal process, in so far as their arrangement into bundles, and their positive relation to the posterior and lateral walls of the same are concerned, are quite constant, and almost form an integral part of the same. The obliteration of the vaginal process depends upon a granulating process, which begins in the middle third of the funnicular portion, and from thence proceeds more rapidly in a downward than in an upward direction. This granulation formation takes place essentially during the first ten to twenty days after birth; after this time it takes place more slowly. The canal of Nuck, on the contrary, is found to have almost entirely disappeared at the time of birth. They are both found to be more frequently open upon the right side.

From these observations it would appear that it is not essential to the production of inguinal hernia that a broad and short inguinal canal should be present. The only essential predisposing cause, in children at least, depends upon the condition of the vaginal process of the peritoneum itself.

The question of the legal responsibility of employers is an interesting one, in connection with this question. Hernia cannot be considered as an accident, in the surgical sense, according to Socin (Korrespondenzblatt f. Schweizer Aertze, 1887, No 18), but is really a slowly occurring disease, to which certain well-defined anatomical peculiarities act as predisposing causes.

ACID SUBLIMATE SOLUTION IN SURGERY.

E. Laplace (Deutsche Med. Wochenschrift, No. 40, 1887), after repeated and careful examinations and experiments, became convinced that dressing materials consisting of wood-wool, made with sublimate in the usual manner, were far from being germless themselves, much less efficient as antiseptic applications. Gauze, however, showed much better results, but were far from realizing an idealistic asepsis. He likewise found that ordinary sublimate, in the presence of albuminous material, is quickly precipitated and becomes at once ineffective. L. experimented at first with hydrochloric acid as a means of preventing changes in the sublimate from occurring in the presence of organic matter, and particularly albuminous material. But, as hydrochloric acid itself was far from possessing the stability needful for the purpose of preparing dressings, he substituted for it, with the most gratifying results, tartaric acid. The proportions are as follows: sublimate, 1 part; tartaric acid, 5 parts; distilled water, 1,000 parts.

OPERATIVE TREATMENT OF PYOTHORAX.

E. Rochelt (Wiener med. Presse, No. 32 and 38, 1887). The expansion of the lung is greatly impeded after the usual operation for empyema by incision, by the free entrance of air in the pleural cavity. Mader, Subbolik and Immerman devised means for preventing this. R. operates by first resecting a rib, leaving the periosteum intact, and subsequently opening the pleural cavity by means of a trocar and canula. A drainage tube accurately filling the latter is now introduced, through which a disinfecting fluid is injected and its outer opening closed by means of a spring clamp. The tube is connected to an aspirating bottle, into which the pus is discharged. The tube is again clamped, and the bottle into which the pus has been aspirated removed, being replaced by another containing a sublimate solution, 1 to 500. Removal of the clamp and raising and lowering the bottle thoroughly irrigates the pleural cavity. This being accomplished, the patient holding his breath in expiration, and the clamp again applied, the irrigating bottle is removed, and a short hard rubber tube connected to the outer end of the drainage tube. This hard rubber tube has a soft rubber diaphragm which acts as a check valve, effectually preventing the ingress of air during inspiration, but in no wise interfering with the egress of fluid from the pleural cavity during expiration, fits of coughing, etc. For purposes of further irrigation the short rubber tube containing the valve may be removed after guarding against the entrance of air by clamping the drainage tube beyond, and the washing bottle reapplied. During the intervals of irrigation, absorbent antiseptic dressing are kept applied.

The abstractor would suggest the application of this method, particularly in recent cases and in children, without the previous resection of a rib. The increased support afforded the canula by the greater thickness of the thoracic walls would be a still greater safeguard against the entrance of air into the pleural cavity. A certain proportion of acute cases will recover without resection of a rib.

WOUND-HEALING UNDER THE DRY ASEPTIC SCAB.

Prof. Kuester (Centralblatt f. Chirurgue, March 17, 1888,) in reply to remarks made by Dr. Sonnenberg before the Associaton of Berlin Surgeons, January 9, who characterized K's method of treating the wound after the operation for the radical cure of hernia as an "open method," objects to this designation of his method, and takes occasion to more fully describe his method as follows: After the reduction of the contents of the sac, the latter is sutured and excised, and the ring is also closed by suturing. The wound cavity itself is now closed by several rows of buried sutures, so arranged as to bring together the edges of the several layers, tissue to like tissue. In congenital cases he does not loosen the sac, but sutures its opposing surfaces down to the point where the testicle lies free. The wound of the skin is now closed by a continuous silk suture, and an iodoformand collodion mixture brushed over the line of suturing until it is perfectly covered in and blood no longer oozes through. No drain is used, and no further dressing is deemed necessary. If, after two or three days, a split occurs in the scab or crust formed by the drying of the iodoform and collodion, the gap is quickly filled by a slight oozing from the deeper portions of the wound, which, upon drying, becomes a bar against infection.

There can be no doubt, if thorough asepsis is observed and obtained during the operation, the method of completely obliterating every space in which blood clot or serum could accumulate would do away with the necessity for drainage. This granted, it follows, as a natural sequence, that absorbent dressings are superfluous, simple protection of the line of suturing from atmospheric influences, infection, etc., being alone indicated. The iodoform and collodion compound would seem to fulfil this admirably. The method could scarcely find application in large or deep wounds, particularly if the latter invaded planes of dense connective tissue, fasciæ, etc. Here it would be manifestly best to provide drainage, etc.

In marked contrast to K's method is that of McBurney, who, providing against infiltration by suturing the entire thickness of each edge of the wound together in such a manner as to render it practically but one layer, packs the wound cavity, and thus obliterates the inguinal canal, the latter filling up by granulation, a firm cicatricial plug taking its place.

THE TREATMENT OF CAROTID HÆMORRHAGE.

Mr. Frederick Treves (*The Lancet*, January 21, 1888). In the neck, pressure upon the carotid artery, in hæmorrhages from the branches of that vessel, cannot be applied in the ordinary way with success, nor could it be maintained for a sufficient length of time, if the pressure succeeded in arresting the hæmorrhage, to be of service. Treves proposes, however, to occlude the vessel temporarily by throwing a broad piece of catgut around it, tying it in a loose loop, and then making traction upon the same. The circulation through the vessel is at once arrested, but can be at once restored upon relaxing the tension upon the loop. He relates four cases in which the method proved successful, so far as the arrest of the bleeding was concerned. One of the patients succumbed to the great loss of blood sustained prior to the application of the ligature, although the other carotid had been previously tied. In the first case the loop remained *in situ* for four days.

The second case was the fatal one. In the third and fourth cases the loop was removed on the seventh day.

The method is based upon the fact that temporary arrest of the circulation in certain cases of hæmorrhage from the limbs, where ordinary means may be employed to exercise pressure, are quite sufficient, not only for the purposes of a temporary expedient, but also seems as a curative measure. This temporary modification of the blood current may be all that is required in many instances. Just how long the blood current may need to be checked, must be carefully studied in each individual case. The thought occurs to us, however, that some risk may be run of setting up an ulcerative action in the vessel walls by the prolonged application of a loose ligature, upon which must be exercised an intermittent pressure, by the pulsation of the vessel itself.

ARTIFICIAL AID IN THE FORMATION OF CALLUS.

Prof. Helferich (Archiv. f. Klinische Chirurgie, Band 36, 4. Heft, 1888). In cases of delayed union, and even in normal cases, to hasten the natural process of repair, H. advises the application of an elastic rubber bandage in such a manner as to retard the return flow of venous blood, by this means favoring an increased amount of pabulum to the field of repair, thus indirectly augmenting the formation of callus. The patient must be taught to regulate the pressure, attention being directed to the condition of the nails, in order that the bandage may be adjusted to suit the varying condition of congestion present. Œdema may be controlled by the application of a flannel bandage to that portion of the limb below the site of fracture. It is claimed that by this method the cure, in normal cases even, is considerably shortened. The process of repair is hastened by keeping the limb in a dependent position. The presence of small erosions at the site of fracture is not a contra-indication to the use of the elastic band. The time of application is of some importance, a too early application leading to too active hyperæmia; while, on the other hand, if too long delayed, the period of time in which the action will take place has passed. In wired compound fractures and in resections, pressure may be applied in from five to fourteen days after the operation, providing inflammatory symptoms are absent.

Thomas, of Liverpool, has recommended a procedure, which is known as the percussion method, to hasten the repair in delayed bony union, in cases of imperfect union, and in ununited fractures. This consists of percussing, once in a day or two, the site of the injury with a small copper hammer for five minutes or more, and subsequently bandaging the parts firmly.

It is suggested that the formation of varicose veins may be an objection to the method of Helferich. Further, it is quite clear that the method is not to be thought of in tuberculous subjects, as well as in cases of large open wounds at the site of fracture, or where a gap is left by resection of bone, removal of tumors, etc. The question of its applicability to atrophic members is an open one.

COMMUNICATION OF TUBERCULOSIS BY RITUAL CIRCUMCISION.

F. S. Eve (*The Lancet*, January 28th, 1888), relates the case of a Jewish child, in whom, six weeks following the usual rite, a small swelling appeared in each groin. They were found to be filled with caseous material, which, upon being inoculated beneath the skin of guinea pigs, gave rise to tuberculosis in the latter. The "Mohl," or person performing the rite, had ejected some wine from his mouth over the cut surfaces of the prepuce. It was subsequently learned that this person had died of pulmonary consumption shortly afterwards. Another child in the same house, operated upon by the same person, suffered from the same infection. Both children finally recovered.

Similar experiences have been recorded by Eisenberg (Berlin Med. Woch., No. 35, 1886), and Meyer (Centralblatt f. Chirurgie, No. 46, 1887). Of greater importance, because of a probably greater frequency, is the transmission of syphilis in this manner. A group of cases of this kind were recently collected and made the subject of study at the London Hospital.

TRANSPLANTATION OF THE SKIN.

Baratoux and Dubonsquet (Progres. Med., No. 15, 1887). D. treated two extensive wounds caused by burning, in which no attempt at cicatrization seems to have been made, although granulation was progressing well, by transplantation. Simultaneous auto-transplantation, and pieces of skin from a frog's back the size of a thumb-nail, was practiced. Most of the latter lost their pigmented aspect after ten days, and adhered well, taking on the natural color of the human skin. The wound where the frog's-skin transplantation had been performed healed more rapidly than the other where human skin was used, the cicatrix being softer as well. B. treated cases of ulceration of the nose, and also perforations of the membrana tympani, successfully by transplantation of frog's skin, healing taking place in from one to two weeks.

In three old cases of perforation of the drum membrane, the margins were freshened by touching them with nitrate of silver, and a piece of frog's skin attached. In three days a cicatrix had formed, with considerable improvement in the hearing. Transplantation must be practiced with a healthy granulating wound, hæmorrhage being avoided. According to the authors, the wound should be irrigated with a strong solution of carbolic acid, and dried; the pieces of skin should also be washed in a weak solution of carbolic acid.

It suggests itself to the abstractor that still better results would be obtained by substituting a sterilized solution of chloride of sodium, say of the strength of 6 to 1,000, for the strong carbolic solution recommended, to be used just prior to the operation. The changes produced in the vessels and their contained blood by the use of strong disinfecting solutions are calculated to prevent early adhesion of the new skin. At least such is the general experience of recent observers. Reliable disinfection of the ulcerated surface may be obtained by keeping the parts covered with gauze wrung out of a 1 to 12,000 solution of potassio-mercuric iodide for a day or two previously.

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OBSTETRICS.

BY CHARLES JEWETT, A.M., M.D.,

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THE IMPROVED CÆSAREAN SECTION.

Garrigues (Am. J. M. S., May, 1888,) describes in detail a successful case of Cæsarean section with observations on the *technique* of the improved operation. He prefers a long abdominal incision, and eventration of the uterus before opening it, the advantage claimed being the easier application of the rubber constrictor. The constrictor is more manageable if held in the hand of the assistant instead of the clamp, since it can be loosened and tightened as required. To prevent prolapse of intestines he sutures the upper end of the abdominal incision before turning out the uterus, tying the sutures before that organ is opened. Extraction of the fœtus by the head is much easier than by the feet. When a long uterine incision is required, it is better to go an inch into the fundus than to extend the wound into the lower segment, which may cause troublesome hæmorrhage.

Removal of the ovaries for the prevention of subsequent pregnancies he thinks not justified. The omentum he pushes up above the uterus to prevent adhesions to the suture line and the consequent danger of subsequent intestinal obstruction.

Dr. Garrigues believes Cæsarean section safer than *difficult* extraction through the natural passages.

Eleven Cæsarean sections were done in this country between December 16, 1886, and February 24, 1888, (Dr. R. P. Harris) all by the improved method but one. Six women and eight children were saved. Six of the operations were performed in hospitals, saving five women; five in private practice, saving only one. All the five hospital cases operated by the improved technique were successful. The bad results in private practice Dr. G. ascribes to imperfect antisepsis. He alludes to the tardy adoption by our own countrymen of the antiseptic methods in general obstetric practice which have met with almost universal acceptance elsewhere—in Germany midwives being even compelled by law to use antiseptic precautions in every case of confinement.

Including the above-mentioned case, one hundred and sixty-three Cæsarean sections had thus far been done in the United States (Harris). One hundred and seventy to date of this writing.—Ed.

The paper concludes with a detailed statement of the *modus operandi* and after-treatment in the modern Cæsarean operation. (A loop of the constrictor can usually be readily passed over the fundus and slipped down to the cervix while the uterus is still in the abdomen as we have shown.) A Case of Cæsarean Section, N. Y. M. J., August 29, 1885.) Traction upon the constrictor perfectly occludes the short abdominal wound during the incision of the uterus, eventration taking place as the uterus collapses on removing the fœtus. The advantage, therefore, of extending the abdominal incision some inches above the umbilicus in all cases and turning out the uterus before opening it may be doubted. It is sometimes, however, impossible or difficult to apply the constrictor to the uterus *in situ*. Extraction of the fœtus by the head is certainly easier than delivery by the feet as advised by most writers.

The comparative results of induced labor, version, perforation and Cæsarean section in the Dresden Clinic have been recently considered in a series of papers by Leopold and his assistants, Korn, Lohman and Praeger.

The maternal mortality was as follows:

Induced premature labor	2.2	per cent.
Version and extraction	4-8	“
Perforation	2-8	“
Cæsarean section	8-6	“

The fœtal mortality was in

Premature labor	33.4	“
Version and extraction	41.	“
Cæsarean section	13.	“

Leopold concludes that while Cæsarean section cannot yet be substituted in all cases for craniotomy, it is at least justifiable as an alternative when the following conditions are present or possible, viz.:

Complete asepsis.

The patient strong and not long in labor.

The fœtal heart-beats normal in rate and rhythm.

Strauch (Arch. f. Gyn.), analyzing the results in twenty-eight cases of induced premature labor arrives at like conclusions. While the mortality in cases of the mothers was *nil*, the fœtal mortality was fifty-five per cent. The rights of the fœtus demand a more frequent choice of Cæsarean section, the mortality of which by the modern method is thus far 11.8 per cent. for the mothers and 8 per cent. for the children.

Dr. Felice La Torre, of Paris, reaches the conclusion from extensive clinical research that craniotomy or premature labor is better than Cæsarean section, since the former saves all the mothers.

Krassowski (Arch. f. Gyn., B. 32 H. 2) reports five Porro and two Saenger operations saving six mothers and five children. K. uses thymol 1:1,000 for instruments, and the biniodide of mercury 1:4,000 for the hands, etc. He seals the abdominal wound with collodion to which biniodide of mercury has been added.

Zweifel reports six additional cases of the Cæsarean operation after Saenger, saving five mothers and all the children.

THE MECHANISM OF LABOR IN HEAD PRESENTATION.

Sutugin (Sammlung Klin. Vorträge, No. 310) makes an important contribution to the knowlege of this subject. The paper deals with an "almost wholly neglected factor in the mechanism of labor," namely, the position of the fœtal trunk in utero, the mechanism of the trunk movements and their effect upon the positions of the head during labor. He first shows that the views commonly accepted with reference to the position of the fœtal trunk during pregnancy are in part erroneous. Observations by the author in six hundred and sixty cases, published in 1875, established the fact that before labor, in either right or left positions, the dorsum of the child is almost invariably turned to the mother's back, the vertebral column of fœtus, as a rule, lying but little to one side or the other of the spinal column of the mother; and, furthermore, the changes of position during pregnancy, as from right to left, probably take place by rotation along the posterior wall of the uterus. On the occurrence of energetic uterine contractions, especially at the beginning of labor, the back of the child is sometimes rotated to the mother's side. Kehrer has confirmed the conclusions of Sutugin in observations upon certain of the lower animals. It may be noted in passing that, according to Kehrer's observations, gravity is a subordinate factor in determining the attitude of the fœtus in utero.

The author of the paper declares that, in a large number of cases examined during the last twelve years he has not in a single instance found the back of the child turned wholly forward during pregnancy, not even in first positions of the head. He has more recently made a study of the varying positions of the trunk during labor. Early in the labor, in first positions of the head, the trunk rotates so that the back of the child looks sideways, the shoulders lying in a plane parallel with the introitus. The breech rotates more slowly than the shoulders, the spinal column of the child thus assuming the form of a spiral during delivery. The fœtus, therefore, in its descent moves in a screw-like direction around its own axis, but the back of the child is not turned forward even during parturition, as authors generally have assumed. These views are born out by the frozen sections of Chiara, Waldeyer, and Shroeder. The rotation of the head is in part due to the rotation of the trunk, "the torsion of the axis of the fœtus," and is not to be referred solely to the action of the pelvic planes. The author claims that a torsion of the uterus upon its axis similar to that of the child also occurs. With reference to the etiology of the torsion in case of uterus or fœtus, he ventures no explanation.

MANAGEMENT OF THE PLACENTAL STAGE OF LABOR.

Fehling (Sammlung Klin. Vortrage, No. 308) compares the views and practice of authorities in the treatment of the third stage of labor. The various methods of placental delivery that have been advocated by different writers are recounted. The reaction against Credé in favor of expectancy, first started by Dohrn and Ahlfeld, has resulted in proving the inferiority of the latter plan, and in a return to more active methods. In a large number of German clinics, the uterus is allowed to rest immediately after the expulsion of the child, without friction. When the placenta lies detached in the lower uterine segment, which is generally the case after fifteen or twenty minutes, nothing is to be gained by longer waiting. The author is favorably disposed toward the practice of Credé, which as he says, has never been shown by its adversaries to be capable of harm when properly conducted. With reference to the mechanism of placental separation, both theoretical considerations and clinical observations favor the views of Duncan, yet the question is not settled. Retained membranes may be removed with the aseptic hand. Yet Credé and Olshausen consider the retention of even the whole chorion free from danger, and clinical experience has shown better results by the expectant plan in case of retained membranes than by interference. These results, the author thinks, in the light of Döderlein's researches, are explained by the fact that the hand may transport the peccant germs from the vagina into the uterus. The active plan, with a preliminary vaginal disinfection and a vigorous asepsis throughout, should yield better results than expectation. Interference with these precautions is, at least, justified in case of atony and hæmorrhage or fever, including, if need be, the use of the curette and subsequently ergot. Dührssen's method of tamponing the uterus in post-partum hæmorrhage with iodoform gauze is favorably mentioned.

In the event of cervical tears causing troublesome hæmorrhage, Kaltenbach, Schroeder and Leopold practice immediate suture. The author thinks the vaginal tamponade is generally to be preferred. Yet, in certain cases the suture may also be required, or the application of the perchloride of iron on cotton pledgets to the bleeding surfaces.

Credé (Arch. f. Gyn., B. 32, H. 1) again discusses and defends his method of managing the placental delivery which he prefers to call the external method.

The duration of the third stage need not in the majority of normal labors exceed fifteen to thirty minutes. In many instances a more expectant plan of treatment is better. In occasional cases more rapid delivery is demanded in the interest of the mother. Since the method is free from danger when properly conducted, the expulsion of the placenta may be hastened within reasonable limits if for no other purpose than to save the time of the attendants and to spare the sufferings of the patient. He claims that the amount of blood-loss is diminished under his treatment of the placental stage, and that the membranes are not more frequently retained. Furthermore, he believes the retention of portions of the membranes or placenta to be harmless in an aseptic condition of the passages.

The method of Credé, briefly restated, is as follows: First apply gentle, painless friction in a circular direction over the anterior wall of the uterus, laying the hand flat upon the abdomen. Bring the axis of the uterus in conformity with the axis of the pelvic inlet. If the placenta is not expelled after three or four pains assist the next contraction, at its acme only, by compressing the upper segment, grasping the fundus with the thumb in front and the fingers behind, at the same time using gentle downward pressure. Use slight friction only but no compression during the intervals between the pains nor even during the contraction except at its height. Success usually attends the eighth or tenth pain.

SCARLET FEVER: ITS RELATION TO PUERPERAL FEVER.

Boxall (Br. Gyn. J.) in sixteen cases of scarlet fever in childbed found septic manifestations in but one. In forty lying-in patients exposed to the scarlatinal poison the puerperium was entirely normal. Three hundred patients or more were admitted to the hospital during the epidemic of scarlatina therein, yet a comparison of the morbidity during this time with that which immediately preceded the outbreak showed that the prevalence of scarlet fever in the hospital exerted no appreciable effect upon the course of the puerperium in patients who escaped scarlatina.

Galabin (Br. M. J.) thinks there is strong evidence of the bacterial relation of puerperal sepsis to scarlet fever. Septicæmia does not represent a distinct entity like scarlatina. Cheyne found the common microbes of suppuration in the blood of scarlet fever patients not infrequently.

MITRAL STENOSIS AND THE THIRD STAGE OF LABOR.

Dr. D. B. Hart (E. M. J., Feb. 1888,) reports eight cases of this complication with seven deaths. With reference to the etiology Dr. Hart thinks the progress of the cardiac lesion is greatly accelerated by the increased amount of work imposed upon the crippled heart during pregnancy. At the beginning of labor, therefore, we may get failure of compensation, dilated heart and engorgement of the lungs. At the close of the labor, if free hæmorrhage does not occur, the extra blood before accommodated in the utero-placental sinuses is returned to the right heart. Death is therefore liable to occur in the third stage from over distention of the right heart.

Dr. Ballantyne (E. M. J., March, 1888,) adds two more cases to the above record, both terminating fatally. Sphygmograms obtained in these cases show that the period immediately following the expulsion of the placenta is the one of greatest danger, and they are entirely consistent with Hart's theory of the cause of death.

TREATMENT OF ABORTION.

Fry (Am. Obs. J., June, 1888,) advocates the use of the galvanic current as a substitute for the curette for the removal of retained fragments of the secundines. He uses a current of sixty to ninety milliamperes with the anode in the uterus. The application is continued from six to ten minutes and repeated on alternate days. The placental tissue, owing to its relatively low vitality, is destroyed without injury to the uterus itself. Separation and expulsion follow. Hæmorrhage is relieved by the well known hæmostatic action of the positive electrode. Dr. Fry also claims antiseptic properties for the positive pole since here are liberated oxygen and chlorine in a nascent state and also acids.

Goodell thinks the curette an inefficient instrument for the evacuation of the uterine cavity and liable to injure the uterus. He advocates polypus forceps. Parrish finds the curette deceptive. He uses the finger. Longaker prefers the finger. [A Sims' speculum, a dull curette and a strong, straight uterine dressing forceps, with its joint two and a half inches from its distal end need never fail. The finger is awkward, difficult, painful, and sometimes requires preliminary dilation of the cervix. It cannot, moreover, be so easily sterilized, and even though clean primarily is liable to carry septic organisms from the vagina. Injuries to the uterus are for the most part the fault of imperfect asepsis.]

PLACENTA PRÆVIA.

Obermann (Arch. f. Gyn., B. 32 H. 1,) discusses the treatment of placenta prævia by version with the results obtained in sixty-four cases at the Leipsic clinic. The method, which has become known as Hofmeier's method, he states as follows:

Perform bimanual version with deliberate extraction in case of much hæmorrhage. The podalic extremity of the child makes an effectual tampon. Massage of the uterus during extraction is advised to aid expulsion. Iodoform gauze tampon may be used in case of hæmorrhage in the early months. The colpeurynter is recommended in case of hæmorrhage with a closed cervix. Alcoholic stimulants are given early and often.

The results in the sixty-four cases were eighty-nine per cent. of the mothers and forty-seven per cent. of the children saved.

Nordmann, of Dresden, condemns early resort to operative procedures as a routine measure, a more expectant plan of treatment being competent in a certain proportion of cases.

Robt. Barnes (Br. Med. Jour., March 3d, 1887) sums up his views substantially as follows: The hæmorrhage in placenta prævia proceeds from so much of the lower zone of the uterus as is laid bare by separation of the placenta during canalization. This comprises all that portion of the uterus that lies below the equator of the fœtal head. When canalization is complete the hæmorrhage is almost invariably arrested spontaneously by retraction of the lower zone thus freed. Until canalization is completed flooding is liable to persist, but after that process is accomplished the case becomes practically a natural labor. The too prevalent idea that the hæmorrhage is unavoidable and must go on till delivery is erroneous and mischievous. Enough placental attachment usually remains after complete dilatation to preserve the life of the child. The fœtal life is not necessarily compromised except in certain extreme cases of complete central placenta prævia. His views of treatment follow as a corollary. Expedite the first stage, avoiding violence or precipitation. His caoutchouc bags accomplish this indication and control hæmorrhage. Detach the placenta with the finger from the zone below the equator of the head, thus permitting retraction and arrest of flooding. Rupture of the membranes and the use of the binder meet the indications in certain cases. The vaginal plug may be used in occasional instances if carefully watched. The os uteri moderately expanded and the placenta separated from the lower zone, hæmorrhage having ceased, wait. With sufficient dilatation, deliver, if necessary, by forceps, version, or craniotomy. Dr. Murphy's success by this plan has been unexampled. [Dr. Barnes does injustice to version in placenta prævia, since he appears to assume that immediate extraction and violence to both mother and child are a necessary part of the procedure. The success of that plan he attributes in great part to the fact that, in carrying out the operation of turning, the placenta had probably been detached from the lower zone. These criticisms certainly cannot apply in case of external or bipolar version. With reference to Barnes' bags, it is safe to say, "the German teachers" are not the only practitioners who have found them, in many cases, more or less impracticable.]

OBSTETRIC SEPSIS AND ANTISEPSIS.

Auvard, writing to the Annals of Gynec., April, 1888, says, while before the days of antiseptics it was better for a woman to be delivered in the street than in a hospital, the hospital ward is now less dangerous than the isolated lying-in chamber of the out-patient obstetric service. He points out the importance of improving the resisting power by use of tonics before the labor, in debilitated patients. In Auvard's practice every woman takes a thorough bath at the beginning of labor. The whole vulvar and vaginal surfaces and cervical canal are sterilized before expulsion begins, before obstetric wounds are developed. Asepsis before and during the birth is more effectual than the use of antiseptics at the close of labor and renders the latter unnecessary.

Sublimate soap and the sublimate solution, with which this soap makes a lather, are well rubbed into the surfaces to be cleansed by aid of the fingers. The dangers of sublimate poisoning do not obtain while the surfaces are intact.

In the event of septic developments during the puerperal period he thinks sublimate irrigation insufficient for genital antisepsis. The vulva and vagina should be scrubbed by aid of the fingers with the sublimate soap and solution. The uterus should be scraped with the curette. Auvard has devised for this purpose a curette with a hollow stem through which a stream of the antiseptic solution is kept flowing during its use. [The mercurial salts may be replaced with a 1:1000 hydronaphthol solution for use within the passages after labor, though the danger from the former antiseptic may be greatly diminished by washing away the mercurial with a final injection of plain boiled water.]

AUTO-INFECTION IN CHILDBED.

Ahlfeld (Cent. f. Gyn., No. 52,) shows that it is not always safe to presume upon the impossibility of self-infection, and reports two cases in point. In rare cases infection may arise from organisms primarily present in the genitalia. [This goes to fortify Auvard's position.]

OCCURRENCE OF GERMS IN THE DISCHARGES FROM THE UTERUS AND VAGINA DURING THE PUERPERAL PERIOD.

Döderlein (Arch. f. Gyn., B. xxxi., H. 3,) finds in a series of carefully conducted observations, that in normal cases the uterine discharges contain no germs, while in the same patients numerous varieties of germ life abound in the vagina. Pathogenic organisms may occur in the vagina apart from any internal examination. These germs may gain access to the uterus of themselves when not carried by intra-uterine instrumentation or manipulation. These conclusions are confirmed by Kaltenbach.

The uterine lochia of women suffering from puerperal sepsis in any form invariably contain germs, the streptococcus pyogenes being constantly present.

SUBLIMATE SOLUTION.

Laplace has shown the importance of acidulating sublimate solutions for general antiseptic use. Neutral solutions on mingling with blood or other albuminous fluids become more or less inert by the precipitation of the albuminate of mercury. That precipitate is not formed in the presence of hydrochloric or tartaric acids. The proportion for sterilizing wounds should be five parts of the acid to one of the sublimate in one thousand of water. [Biniodide solutions require no acid. This is one of the many advantages of the mercuric iodide over the bichloride for antiseptic use. In a series of experiments made for the purpose of determining the reaction of biniodide solutions on albuminous fluids we found that neutral solutions of the biniodide of mercury yield no precipitate with albuminous fluids. No reaction was obtained with a biniodide solution acidulated with hydrochloric acid in the proportion of five parts to the thousand. The addition of organic acids, such as acetic, citric or tartaric, as is well known, causes a precipitate of albuminate of mercury. There is no chemical incompatibility between sublimate soap and biniodide solutions.]

TRICHLORIDE OF IODINE.

One of the new antiseptic agents is iodine trichloride. In contact with organic bodies it gives off iodine and chlorine in the nascent state. The final products, moreover, hydrochloric and iodic acids, are well known oxidizing agents. The strength of solution used is one part in 1,000 or one in 500 parts of water. Such a solution is equivalent in sterilizing power to a 1:1,000 or 2,000 sublimate solution. [One disadvantage of this antiseptic is the powerful corrosive action of nascent chlorine and iodine upon metal instruments.)

DANGERS OF ANTISEPTICS.

Senger (Br. M. J., May 19, 1888,) has proved by experiments on dogs and rabbits that the antiseptic agents commonly employed are liable to cause degeneration of the kidneys. He injected into perfectly healthy animals corrosive sublimate, carbolic acid, etc., in one-twelfth the quantity necessary to kill them. Then on extirpation of one kidney he found in all cases, on microscopical examination, glomerulo-nephritis. He also found fatty degeneration of the liver, spleen, the heart-muscle, etc. The various antiseptic agents were found to be injurious in different degrees, corrosive sublimate being the most dangerous, then the others in the following order: iodoform, carbolic acid, salicylic acid, boric acid. These observations especially enforce the importance of avoiding the use of antiseptics in the abdominal cavity, or in other large cavities under conditions favorable to absorption. Sterilized water or a five per cent. chloride of sodium solution should be substituted for use in the peritoneum. Senger has shown that the salt solution in no way injures the organs, and that it possesses moderate antiseptic power, killing the streptococcus pyogenes aureus in twenty-eight minutes.

EFFECT OF ERGOT ON THE INVOLUTION OF THE UTERUS.

Drs. G. G. Herman and C. O. Fowler (Br. M. J., Feb. 11, 1888,) discuss this question, basing their conclusions on the results noted in fifty-eight cases treated with ergot for a fortnight after delivery, and sixty-eight in which a single dose only of ergot was given at the close of labor. In the cases continuously ergotized the dimunition of the uterus in size was more rapid than in those who received but a single dose. On the duration of the lochial discharge no appreciable effect was observed from the use of ergot.

Dr. Boxall has made similar observations on two parellel series of cases of one hundred each. Every alternate patient was given a mixture containing ext. ergot. ammon., ♏ xv., t. i. d., during the first three days after labor. Dr. B. concludes from the experience of these cases that the practice of giving ergot as described tends to prevent the formation of clots, to hasten their expulsion, and to diminish the frequency, intensity and duration of after-pains. That if omitted at first and given afterwards ergot tends to promote the expulsion of clots and to relieve after-pains.

ANÆSTHESIA WITH CHLOROFORM AND OXYGEN.

Dr. Kreutzmann (Cent. f. Gyn.) recommends a mixture of oxygen and chloroform vapors as an anæsthetic in obstetric and surgical practice. The mixture may be made by passing freshly prepared and pure oxygen through chloroform on its way to the inhaler. Neudörfer injects a small quantity of chloroform into a balloon filled with oxygen, administering through a face piece. It is claimed for this method, that anæsthesia is at once established after a few deep inspirations without the least excitement, and that there are no disagreeable after-effects, the patient awaking promptly on ceasing the anæsthetic as from a refreshing sleep.

Veit, of Berlin, has operated in seven cases of tubal pregnancy before rupture, in all successfully.

Breisky, of Vienna, has recently performed the first successful laparotomy for the removal of an ectopic viable fœtus in which all the fœtal appendages were at the same time removed. The operation was done at the end of the eighth month. Breisky advocates primary laparotomy with extirpation of the entire sac in preference to the secondary operation.

Brunniche (Cent. f. Gyn.) treated a case of vomiting of pregnancy successfully by feeding the patient through a tube introduced into the upper part of the œsophagus.

Duncan (London Lancet) reports three cases of hyperemesis in which complete relief followed the application of cocaine in five per cent. solution to the vaginal vault and cervix.

Saenger says the process of uterine involution is not a fatty degeneration but normal metabolism.

Dr. Temple, of Toronto, Canada, in a case of post-partum hæmorrhage, hot water and other measures having failed, injected the uterus with a tumblerful of undiluted brandy. Prompt contractions and arrest of hæmorrhage followed.

QUININE AS AN OXYTOCIC.

Dr. Cordes finds in quinine an efficient oxytocic in incomplete abortion. He administers two and a half grains hourly till the desired result is accomplished.

REVIEWS.

The Applied Anatomy of the Nervous System—Being a study of this portion of the human body from a standpoint of its general interest and practical utility. Designed for use as a text-book and as a work of reference. By Ambrose L. Ranney, A.M., M.D. Second edition, revised and enlarged. 8vo. Profusely illustrated. Cloth, $5.00; sheep, $6.00.
New York: D. Appleton & Co., 1, 3, and 5 Bond Street.

A second edition of this work has just been issued and, as the author says, has been enlarged. It contains 791 pages including the index; and is divided into four main parts, the first part treating of the brain; 2d, the cranial nerves; 3d, the spinal cord; 4th, the spinal nerves.

It is very difficult to give a review of a work like this, which treats so largely of the anatomy of the nervous system; and which is the most difficult part of anatomy, and a great deal of which is not positively settled, but is under sharp discussion by those who pay special attention to the subject.

The work is a more or less successful compilation, which is prepared with the idea of its being used as a text-book. Its size indicates that it contains an enormous quantity of material on the gross and fine anatomy, but excursions are also made into the domain of medicine to illustrate the application of the anatomical knowledge to the explanation of symptoms in disease; and quite frequently physiology and pathology are dealt with.

As a text-book the work appears to me a great deal too large; and the treatment of the subjects too diffuse; and often not clear; this is especially so in the anatomical part. Cerebral anatomy is one of those subjects of which it is very difficult to treat in a clear and comprehensive manner so that others can understand it; and for this reason a text-book should be small and contain only such anatomy as is clearly made out and can be made practical use of as applied anatomy. The finer anatomy and the study of the course of fibres, etc., should be taken up as a special work, and studied with patience on specimens, sections, etc.

A great many digressions into physiological questions might have been left out, and some other subjects properly belonging to general medicine, which the student could best study in some of the recent works on diseases of the nervous system, or at the clinics. As an illustration of what is meant, take, for instance, a consideration of the tendon reflex on page 576, and the short imperfect sketch on page 621, on progressive muscular atrophy, when on the next page is a figure of a man, forty-five years old, with progressive muscular atrophy, from Freidreich's work; a case which, by the way, is probably not a case of chronic myelitis of the anterior horns, but one of the cystrophies. The subject of progressive muscular atrophies is now undergoing close study, and a large number of cases are not dependent upon lesions of the anterior horns, but are due to changes in the muscles themselves. The work of Freidreich, Erb, Lichtheim, Ladaur, Charcot, Landonzy and Dejeuni, and many others, have placed the subject in a different light from that in which it was viewed some ten years ago.

Subjects like these can be found more satisfactorily treated in other works, and are altogether out of place in a book like this and only adds to its bulk.

The descriptions are often such as to confuse and mislead a student; for instance, take the opening chapter on the brain, where the author says: "In man and the vertebrates, the cerebro and spinal axis may be divided into three separate portions, each perfectly independent of one another and yet very intimately connected."

Now this division is quite artificial, and is only for purposes of description, and these parts are not *perfectly independent of one another.*

Again, he says: "The nervous system of all animals may be subdivided into two distinct histologic elements, nerve cells and nerve fibres." What has become of the neuroglia and neuroglia cells; are they not important histologic elements in the nervous system of all animals? Without this supporting framework what would become of the nerve tubes and ganglion cells? And in many of the diseases of the central nervous system this neuroglia takes on a very active condition, as is seen in such a disease as disseminated cerebro and spinal sclerosis.

On page 45, in speaking of the study of sections of the cortex, the author says: "By a judicious employment of gradually increasing powers in the microscopic objectives used, the general arrangement of the elements may be first mastered, and later on the minute details of each of the component parts may be studied."

This sounds like a most formidable and delicate task in the *judicious employment* of objectives in increasing powers in the study of these sections. No one should attempt to study the histology of the nervous system without previously knowing something about the use of the microscope and having some practical knowledge of general histology and pathology; to such a person the study of sections does not depend upon *the judicious employment of gradually increasing powers in the microsccpe objectives;* if he use a No. 2 and a No. 7 of Verick, or some objective of about the same magnifying power, it is then simply a question of studying the specimens with those powers and learning to see and understand what he sees; there is no mystery about it.

I will refer to one other paragraph on page 56, where it is stated:

"The central gray matter of the spinal cord. This has no connection with the higher senses. It is capable in itself of the simplest kind of reflex acts by means of the spinal nerves. These can be produced at the will of the experimenter, in the beheaded frog, when an irritation of the skin by an acid, etc., is created; and Robin has satisfactorily performed the same experiment upon a beheaded criminal. We have reason to believe that the spinal cord can be slowly and in a purely automatic way taught to perform certain series of muscular movements (as in playing scales upon a musical instrument, for example,) without any intervention of the higher ganglia."

This is physiology. Is it true that the central gray matter of the spinal cord has no connection with the higher senses? The complicated movements which are performed by a person playing on a musical instrument, like the piano, for instance, are more than a simple reflex action of the spinal cord; and we do not believe that the spinal cord can be taught to perform such movements without the intervention of the higher ganglia. When one is learning to play the piano or other musical instrument, the higher centres are constantly in action, guiding and regulating the muscular contractions which go to make up the act of playing; after constant repetition under the guidance of the higher centres, the spinal cord and lower centres, as it were, learn and retain the combinations necessary to the performance of the act, all that is necessary is to start the particular combination, and the spinal cord will carry it on automatically.

The spinal cord cannot be taught to perform such complicated acts without the intervention and guidance of the higher centres to begin with.

Dr. Ranney has done a great deal of work in the preparation of this volume, and deserves much credit for his endeavors to collect this somewhat scattered material.

The work has numerous illustrations and diagrams, most of them exceedingly good, but we observe among them some of the worthless and often fanciful illustrations from Luys', which are reproduced here.

J. C. S.

MISCELLANEOUS.

DR. J. B. MATTISON.

Dr. Mattison recently spent several weeks in Bermuda, and the *British Med. Journal* in reporting a meeting of the British Med. Association, held in the Town Hall at Hamilton, says:

By request of the Society, Dr. J. B. Mattison, of Brooklyn, gave an address on the subject of narcotic inebriety. Attention was called to the extensive use of opium, chloral, and cocaine, notably in France, Germany and America. The genesis of the disease was a physical necessity in many cases. The speaker said in proper cases his plan—an original one—was to secure an entire narcotic disuse by regular reduction, in ten days, meantime bringing the nervous system under the sedative influence of bromide of sodium, in initial doses of thirty grains, at twelve-hour intervals, increasing the dose ten grains daily, and reaching, if required, a maximum of one hundred and twenty grains at the end of the withdrawal period. The resultant reflex irritation was treated by hot baths, cannabis indica, hyoscyamus, coca, and electricity, with a subsequent tonic regime. The prognosis was good as to recovery, but in most cases, sooner or later, there was a return to the narcotic, due to a renewal of the original cause, or to other conditions beyond control. A vote of thanks to Dr. Mattison closed the meeting.

Dr. Mattison is translating Erlenmeyer's Die Morphiumsucht und ihre Behandlung—the Morphia Disease and its Treatment; third and last German edition, the latest and largest work on the subject, which, with notes and comments by the translator, will be brought out the coming autumn.

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LONG ISLAND COLLEGE HOSPITAL TRAINING SCHOOL FOR NURSES.

The graduating exercises of this training school took place on June 12th, at the hospital. Prof. Jarvis S. Wight presented the diplomas, and Dr. George G. Hopkins delivered the address. The following are the graduates of the class of 1888: Mrs. Elizabeth Raifstanger, Nellie E. Russell, Elizabeth Munday, Abigail Collins, Lucy Wood, Elizabeth Ritchie, Ellen Enright, Florence Jackson, Jennie E. Stuart, Minnie M. Flower, Florence Crompton, Signa Johnson, Eleanor Mary Senkler.

"POST TENEBRAS LUX."

BY PROF. F. H. GERRISH, OF BOWDOIN COLLEGE.

The Era Prize Essay.—Reprint from the Pharmaceutieal Era.

Originally every physician was his own apothecary, and at the present time probably a majority of medical practitioners dispense their own medicines, very rarely writing a prescription. These will have but a languid interest in the subject of this essay, which deeply concerns all physicians who are not their own apothecaries, and all compounding pharmacists.

In medical, as in every other science, the increase of knowledge so widened the field that it became impossible for one mind to grasp all the facts, and a division of labor took place, the part of the work which related to the collection, preservation and dispensing of drugs being assigned to a class of men who had displayed peculiar aptitude for that branch. Thus was constituted as a distinct occupation, the specialty of the apothecary, which, beginning as a department of medical science, is inherently honorable, and has been so developed that it gives scope for a lifetime of fascinating research, elevating study, and profitable endeavor, independently of any proper work of the modern physician. The two callings are, for the purposes of this discussion, as in their best actual operation, practically distinct; and yet they are not independent, but interdependent. The greater part of the physician's labor would be vainly spent, were it not supplemented by the service of the pharmacist; the latter's business would cease to have a reason for existence but for the vocation of the former.

In this paper it will be taken for granted that the physician is well educated and experienced in his profession, that the apothecary knows his business thoroughly, and that both are actuated by high moral purposes. The grievance of neither, therefore, will result from the intentional wrong-doing of the other, but from his thoughtlessness or conservative adherence to long-established custom. The honesty of each being presupposed, such a charge as the substitution of an inferior article for some ingredient in a prescription, or the false insinuation that a mistake in the medicine is due to the compounder's carelessness need not be raised. Let us consider the grievances of each against the other.

The physician complains that the apothecary exceeds his function by prescribing for the sick. A person applies to the pharmacist for a remedy for a specified disease. The latter consults the dispensatory, finds a number of medicines mentioned in the therapeutical index under the name of that malady, selects one, and sells the article to the patient. He regards the protest of the doctor merely as the wail of one who is disappointed at not getting a fee for prescribing. The physician has a right to complain of those who prescribe for any but the indigent without a professional fee, for this makes it vastly harder for him to collect the charges to which he is entitled; but he has higher ground than this. With him the first step in every case of disease is diagnosis, without which prescribing is simply drawing a bow at a venture, with small probability of penetrating a joint of the harness; and he insists that neither the apothecary nor the patient is qualified to make a diagnosis. The determination of the character of a disease is not a simple matter, often baffling the profoundest learning and the broadest experience, and, in most cases, requiring special knowledge and discriminating judgment. The most obtrusive symptoms are by no means necessarily the most characteristic; a given symptom may be the accompaniment of different diseases, and sometimes attends pathological changes of diametrically opposite nature. But one who is uninstructed in this branch has nothing but symptoms to guide him, and therefore frequently, if not commonly, is led into error, which may produce the gravest results. The educated physician is the only person who is equipped to solve the problems of disease; and it is, in the long run, cheapest, even from the financial point of view, for one who is ill to obtain competent medical advice. Therefore, considering merely the welfare of the patient, the physician deplores the custom of counter-prescribing.

The universal practice among apothecaries of refilling prescriptions indefinitely, without the sanction of those who wrote them is frequently the subject of adverse criticism by physicians. "But," says the pharmacist, "is not the prescription mine?" Probably the reply will be affirmative, though this is a question not entirely settled in the minds of those concerned. Granting, however, for the sake of the argument, that the apothecary is the rightful owner of the prescription, he triumphantly asks, "May not one do as he chooses with his own?" Not always, by any means, unless he elects to use his property in a way which will not imperil the welfare of others. The law puts many restrictions on the natural rights of ownership, for the purpose of shielding society from the ignorance, the malice, and the cupidity of proprietors. In the matter of prescriptions there are no such limitations; but in this, as in so many other affairs, we should be controlled not merely by considerations concerning our legal rights. The unwritten, but greater, law regards the question from a higher plane; and from this point of view one sees that there are moral reasons which should restrain the apothecary in these premises. Let us look at prescription-refilling in its remote as well as its immediate bearings.

The physician writes his prescription for one occasion and for one only. He designs it to fulfil the indications in a particular case at a given visit. It is often in the highest degree improbable that the conditions of the case will remain the same for a given length of time; and, when they change materially, another prescription is needed to satisfy the altered requirements. Of these things many patients and apparently, all apothecaries are accustomed to take no note; and, therefore, the prescription is refilled for the same person on many occasions, when something very different ought to be furnished, the expected improvement does not occur, and the physician is blamed for the failure. The prescription, intended for the treatment of a certain condition afforded relief and changed the state of affairs. Thereupon, further advice should have been sought by the patient, his physical condition investigated anew, and another recipe given by the physician, if he deemed it desirable. To hold the doctor responsible for the ill effect or lack of effect of his prescription in circumstances unlike those for which it was designed is obviously unjust. Yet this is done habitually, both in the case just supposed and in those other instances, quite as common, in which the recipe is compounded, not for whom it was written, but for some other person, who supposes (on what slender evidence it is appalling to contemplate), that his ailment is identical with that of the original patient. The refilling really amounts to the apothecary's abetting the patient in self-treatment. There is a trite remark to the effect that he who undertakes to be his own lawyer is sure of a fool for a client. In legal actions the matters at stake mostly relate to property; in medical affairs, health and life are involved. Can anything better be said of the wisdom of him who, without adequate training, undertakes to settle questions in which his very existence is concerned, than of the sagacity of the man who, with no competent knowledge of law and the methods of the courts, presumes to manage a case in which merely a sum of money may be lost?

But undesirable as is the custom of pharmacists in this repect, it is unreasonable in physicians to grumble at it, until they reform a habit of their own, which encourages the practice which they deprecate. When a physician finds a sick man improving with a certain plan of treatment, and wishes the same medication continued, usually he simply tells the patient to have his bottle refilled at the apothecary's. The latter, knowing that this is the usage of the medical profession, is accustomed to suppose—constructively, at least—that, when the bottle is returned to be replenished, it is brought at the desire of the doctor; and he again compounds the medicine, as he would not be justified in doing, if the method of physicians was different. If the latter would habitually rewrite their prescriptions, or indite orders for repetition, whenever they wish a continuance of treatment, apothecaries would have the best possible sanction for supplying medicines to patients a second or a thousandth time, and would have no moral warrant for such action without the written direction of the authors of the recipes. When the doctors adopt the plan suggested, a violation of their request that their prescriptions shall not be repeated without their written order will furnish abundant ground for complaint; until such change of method is established, the consistency of their protest does not conspicuously appear. By the practice proposed, the apothecaries would lose some business, indeed, but the community would experience an immeasurable gain.

The sale of so-called patent medicines by pharmacists is a continual irritant to doctors. Their objections have the same basis as in the preceding case, namely, that apothecaries ought not to encourage the people to prescribe for themselves. A distinguished physician once said that drugs do more harm than good—a statement which will not be disputed by those most conversant with the facts. But this is no argument against the employment of medicinal remedies in any proper way. Drugs taken by advice of educated, competent physicians do an immense amount of good; the injury comes almost altogether from their administration independently of the recommendation of qualified medical men. Concocted, not to benefit humanity, but to enrich their manufacturers, advertised as positive cures of diseases which the utmost skill of the medical profession cannot control, sometimes inert, sometimes dangerous from the poisons which they contain, pressed upon the attention of the people with impudent persistence and colossal mendacity, the infamous compounds, called patent medicines, are purchased by the credulous public in almost incredible amounts. Nobody knows as well as the pharmacist what quantities of drugs are sold in this form; nobody knows as fully as the physician the enormously baneful effects which they produce. If apothecaries would refuse to handle this class of goods, they would confer a wonderful blessing on humanity, by demonstrating their belief in the injuriousness of these articles, and thus bringing them into disrepute; and they would vastly dignify their profession by displaying its sense of moral obligation, even at the sacrifice of a lucrative part of its business.

Apothecaries complain that, to meet the demands of prescriptions, they are obliged, at great expense, to keep in stock a large number of whimsical preparations, and also many brands of the same standard medicines, when really one is practically as eligible as another. There is force in this complaint. As a rule, the former class of preparations has but an ephemeral popularity, and, as for the latter, there cannot often be need of specifying the goods of a particular manufacturer;

for a worldly-wise, not to say honorable, pharmacist certainly may be trusted to furnish only fine articles, that he may keep the favor of those upon whose good-will his legitimate business depends. If a special brand is deemed necessary by the doctor, he can request a convenient apothecary to procure a quantity, and then can send to his shop the patients who require this article. Thoughtful consideration of this grievance will dictate some such course and effect its redress.

Occasionally, in places where apothecaries are accessible, physicians furnish their patients with medicines. This the pharmacist rightly regards with disfavor, as diminishing his legitimate business. The truly wise physician shuns this practice, perceiving that he cannot be as competent a pharmacist as is one who is nothing else, and furthermore, preferring to avoid the suspicion of administering medicines unnecessarily for the purpose of making a profit on them. Enlightened selfishness prompts him to encourage scientific pharmacy as a specialty.

BROOKLYN VITAL STATISTICS FOR JUNE, 1888.

By J. S. Young, Dep. Commissioner of Health.

Data of comparison :

Population, estimated on July 1st, 1888	793,960
Inhabited houses, about	93,000

Average birth-rate per 1,000 for ten years (returns incomplete).

In the month of June, 1888, there were 1,513 deaths, the rate of mortality being 23.78 in every 1,000 of the population.

The number of births reported was	937
The number of marriages reported was	531
The number of still-births reported was	113

The mortality by classes and by certain of the more important diseases was as follows :

Causes :

1. Zymotic	434
2. Constitutional	251
3. Local	644
4. Developmental	121
5. Violence	63
Measles	6
Croup	8
Diphtheria	82
Scarlet Fever	45
Typhoid Fever	—

Whooping Cough	5
Malarial Diseases	4
Diarrhœal Diseases (all ages)	244
“ “ (under 5 years)	233
Phthisis	137
Bronchitis	45
Pneumonia	80
All Respiratory Diseases	149
Bright's Diseases	35
Puerperal Diseases	17
Old Age	17
Suicide	10

Reported cases:

Diphtheria	214
Scarlet Fever	255
Measles	128
Typhoid Fever	—

During the month 13 cases of small-pox were reported, of which number 13 were confirmed as small-pox. 13 cases of small-pox were sent to hospital. No deaths from small-pox occurred in the city and 2 in the hospital.

Deaths by sex, color, and social condition were as follows:

Male	846	Female	667
White	—	Colored	21
Native	1102	Foreign	411
Married	328	Single	1006
Widows, Widowers, and not stated			179

Still-births (excluded from list of deaths) were as follows:

Males	60	Females	53
Total			113
Deaths in public institutions			115
Deaths in tenement houses			745
Inquest cases			156
Homicides			—
Suicides			10

Age Periods:

Deaths under 1 year	496
“ “ 5 years	253
Total deaths under 5 years	749
“ “ 5 to 20	126
“ “ 20 to 40	223
“ “ 40 to 60	233
“ “ 60 and upwards	182

Certain foreign and American cities show the following death-rate for the month of June:

Brooklyn	23.78	Vienna	31.50
New York	26.86	Paris	21.68
Philadelphia	18.98	London	16.10
Berlin	19.40	Glasgow	22.98
Dublin			23.58

NEW INSTRUMENTS.

This is a bulletin of inventions and improvements of interest to the physician and surgeon, and is published quarterly by Leach and Greene, Boston, Mass. It is mailed free to any address.

ANTIFEBRINE.

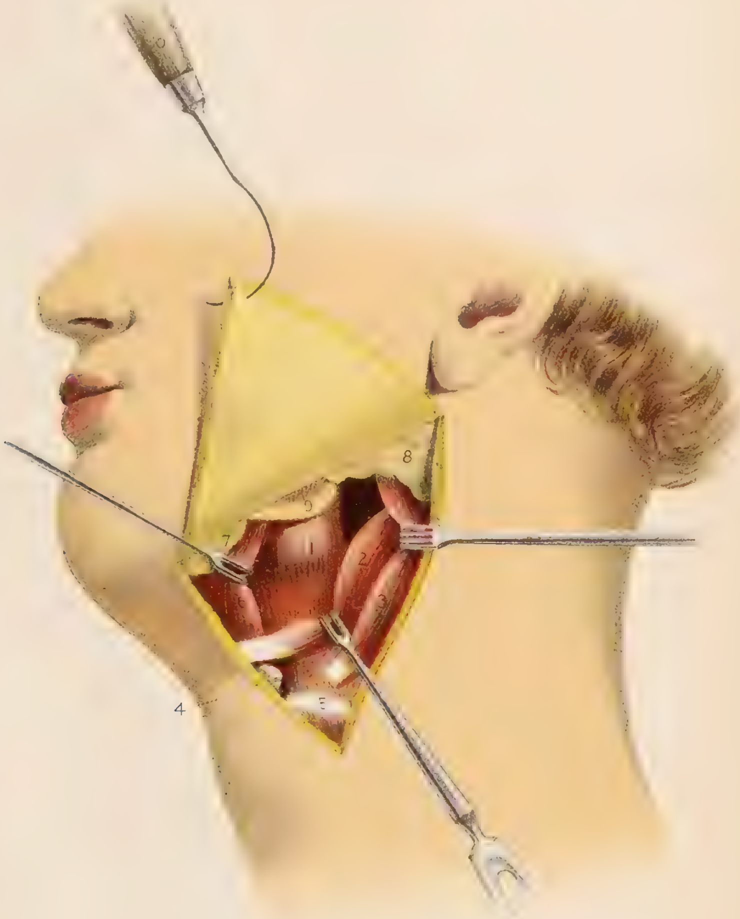
Antifebrine as a proprietary name is controlled by patents, and when bought under this name it costs about thirty cents per ounce. The name acetanilide, for exactly the same substance, is not and cannot be controlled in any way, and under this name it can be bought for about fifteen cents per ounce. As acetanilide is about one-eighth the price of antipyrine, and effective in half the dose, it is far more economical to the patient.—*Pittsburgh Medical Review.*

ENEMA LESIONS.

"Dr. Achilles Nordmann, of Basle," says the *Lancet*, "has published a description of twenty-five bowel lesions due to the operation of administering enemata. They include three complete perforations and ulcers, and wounds of various depths and sizes. The causes of these lesions seem to have been the use of defective instruments, ignorance of the direction of the rectum, catching of the transverse fold on the tube, extreme irritation of the mucous membrane of the bowel, and obstructions caused by certain conditions of the uterus, the fœtal head, or an enlarged prostate. As a rule, these lesions are to be found on the anterior wall of the rectum, from one to seven centimetres from the anus. They are not always easy to diagnose, as other foreign bodies or caustics may produce similar appearances. Tubercular and hæmorrhoidal ulcers may be mistaken for them; these are, however, generally higher up. A perforating wound gives rise to paraproctitis, but this is not necessarily fatal, though a stricture generally results." —*N. Y. Medical Journal.*

DR. GEO. R. FOWLER'S

Case of External Pharyngotomy for Primary Carcinoma of Tonsil.



THE

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ORIGINAL ARTICLES.

PRIMARY CARCINOMA OF THE TONSIL—EXTERNAL PHARYNGECTOMY—RECOVERY.

BY GEO. R. FOWLER, M.D.,

Surgeon to St. Mary's Hospital and to the Methodist Episcopal Hospital.

Cancerous neoplasm of the tonsils, as a primary disease, is, accord-to Castel, more common than is usually supposed. In a discussion upon this subject at the London Pathological Society in 1883, the opinions of various surgeons were found to support this view. Butlin, F. Semon, R. Williams, and others, hold that, while malignant disease of these organs is not frequently met with, yet its occurrence as a primary disease is rather more common than as a secondary affection. A notable exception to those who hold this view, however, is to be met with in Miculicz, who claims that cancer of the tonsil is generally, or at least more frequently, met with as secondary to malignant disease elsewhere. In this connection, the following case is of interest:

Mrs. J. E. L., aged 67, kindly referred to me by my friend, Dr. A. Ross Matheson, was admitted to my service at St. Mary's Hospital, January 21, 1886, with the following history: Two of her cousins had died of cancer of the breast. Nine months prior to admission, she noticed an enlargement of the left tonsil, which interfered with deglutition. The trouble progressively increased, and finally Dr. Matheson removed a portion of the growth for microscopical examination; the result was not satisfactory, but a suspicion as to malignancy was aroused, and her medical adviser strongly urged upon her the necessity for its immediate removal. This advice, however, she, for several months, declined.

Upon admission a rather lobulated and somewhat movable growth was found occupying the site of the left tonsil, of about the size of an English walnut. There was also a lymphatic enlargement beneath the posterior border of the sterno-mastoid muscle. She complained of pain about the angle of the jaw and, in fact, the entire left facial region. This was aggravated by swallowing, the latter being accomplished only with the greatest difficulty.

The following operation was undertaken for her relief on January 21, 1886—anæsthetic, ether: The patient's head was well extended and turned to the right, being supported in that position by means of a small sand pillow. An incision, commencing just below the lobe of the left ear was carried downwards and forwards along the anterior border of the sterno-mastoid muscle to a point about two cm. below the level of the hyoid bone. A second incision, commencing about half way between the angle of the inferior maxilla and the symphysis menti was carried directly downwards and backwards to meet the lower angle of the first incision. A triangularly shaped flap was thus marked out, its base and point of attachment being represented by a line drawn across the angle of the jaw, from the lobe of the ear to the point of the chin, while its apex rested slightly below the greater cornua of the hyoid bone. This flap was dissected up and included the tissues down to the sheaths of the muscles. The external jugular vein was divided between two ligatures. The facial and lingual arteries were divided and secured. The flap being well retracted, the following parts were brought into view in the space thus exposed: The angle of the jaw, portions of the parotid and submaxillary glands, the stylo-hyoid muscle, and beneath this the posterior belly of the digastric; a portion of the anterior belly of the last named, together with the omo-hyoid muscle. Just below the angle of the jaw a small portion of the hyo-glossus was visible. The working space thus obtained was considerably augmented by severing the hyoid attachment of the stylo-hyoid, and, with blunt retractors, dragging this muscle, as well as the posterior belly of the digastric and the important vessels and nerves of this portion of the anterior triangular space, well downwards and backwards. In a similar manner the mylo-hyoid was retracted anteriorly. By passing the fore and middle fingers of the left hand into the patient's pharynx, and pressing the diseased tonsil well down and in an outward direction, the tumor was rendered quite prominent externally beneath the angle of the jaw. (See chromo-lithograph: 1. Tonsil resting upon the superior constrictor of pharynx and hyoglossus muscle. 2. Posterior belly of digastric, retracted. 3. Stylohyoid muscle, divided at its lower and anterior attachment at "4," and likewise retracted. 6. Mylo-hyoid muscle, drawn anteriorly by retractor. 7. Portion of submaxillary gland. 8. Portion of parotid gland. 9. Angle of inferior maxilla.) With the fingers still pressing upon the tumor so as to bring it prominently into view, where it was held by a stout ligature in the hands of an assistant, a circular incision was made with the thermo-cautery through the hyo-glossus, superior constrictor, and the mucous membrane, so as to include the outer base of the growth, and the diseased area surrounding the same. In this manner complete extirpation of the organ was accomplished, the final stage being completed without the loss of a single drop of blood.

The incision along the anterior edge of the sterno-mastoid was now carried across that muscle to its posterior border so as to include the lymphatic enlargement before mentioned, and this was literally shaved off from the sheath of the common carotid artery. The mass was found to include a series of lymphatic glands nearly eight cm. long. Considerable time was occupied with this step of the operation, owing to the fact that the capsules of these glands were intimately adherent to the sheath of the carotid artery.

Following the usual antiseptic irrigation of the wound, the parts were replaced. The stylo-hyoid muscle was sutured with catgut at the point where it had been divided; a drainage tube was placed in position to drain the parts behind the angle of the jaw, the cavity from which the lymphatic glands were removed being drained by strands of catgut. Sutures of the latter material served to secure coaptation of the wound edges after adjustment of the flap.

On January 25th, it is noted on the hospital record that the pulse and temperature were normal, and that she swallowed with much less difficulty.

On January 28th the dressings were removed for the first time. There was a remarkably slight discharge, considering the fact that the wound communicated with the cavity of the mouth. She still complained of pain in the left ear and left side of face, which however was readily relieved by anodynes. The greater portion of the wound has healed by first intention.

On January 31st it is noted that she could masticate and swallow solid food. Up to this time she had been kept on liquid diet.

On February 2d she sat up. The wound communicating with the cavity of the mouth was found to be almost closed on the 4th. The track of the drainage tube was necessarily slow in closing, but this was finally accomplished, and she was discharged from the hospital cured on February 18th.

Eight months afterward I saw this patient with Dr. Matheson. The tonsillar region itself still remained free from return of the disease, but she was suffering from a secondary involvement of the parotid of the *right* side, as well as the left, together with undoubted symptoms of gastric cancer, from which latter she finally perished.

With reference to the early history of this case, attention may be called to the following diagnostic points: 1st. The patient's age. At her time of life, hypertrophy of the tonsil, pure and simple, is a rare affection. 2d. The growth occurred on one side only, the other organ showing not the slightest increase in size. This is in marked contrast to the usual course of simple tonsillar hypertrophy. 3d. The early occurrence of pain, cutting in character and radiating over the left side of the head and neck. 4th. The peculiar cartilaginous character of the growth. When Dr. Matheson attempted its removal, he found it impossible, although the instrument employed was a strong and sharp Matthieu tonsilotome, to remove more than a very thin slice from its most superficial portion. These facts awakened a suspicion as to its true character before the lymphatic mass made its appearance. This latter occurrence seemed to render this suspicion a positive certainty.

The operation of external, or lateral pharyngotomy, as it is sometimes termed, although seemingly formidable from the important structures involved in the dissection, is, like that for ligature of the external carotid and lingual artery, comparatively easy of execution. The preliminary incisions vary considerably, according to the size of the neoplasm and extent of the morbid process in its invasion of neighboring tissues.

Bilroth, followed by Kuester, preferred the following method: The incision, eight or nine cm. in length, is made along the anterior border of the sterno-mastoid, and is similar to the one employed in the ligature of the carotid artery. The skin, platysma-myoides and superficial fascia being divided, the sterno-mastoid is brought into view and its sheath opened. The muscle is then freed from its attachment at its lower part. Should the case require a low operation, the omohyoid is divided, as well as the upper part of the middle cervical fascia, and the carotid vessels are exposed to view. At the bottom of the space thus secured and close to the greater cornua of the hyoid bone are to be seen the superior thyroid, the lingual and facial arteries. If necessary, these vessels, as well as the venous trunks encountered, may be divided between two ligatures. The loop of the hypoglossal nerve is also divided. By retracting the parts with blunt retractors, considerable room will be gained, and the pharynx exposed to view, occupying the bottom of the wound. With a sound in the pharynx, or the fingers as a guide, placed in the same situation, the pharynx may be opened to the extent of the space uncovered by the external dissection. By means of the incision above described, either the laryngeal or the buccal portion of the pharynx may be reached.

Wheeler operated by means of what may be termed a typical inferior pharyngotomy. His incision extended only from the greater cornua of the hyoid bone, to the cricoid cartilage. The division of the omohyoid and corresponding fascia is here necessary. The bifurcation of the carotid lies at the upper part of such a wound. The ligature of the superior thyroid artery alone will be necessary in such an incision, which will, however, be rarely sufficient for the purposes of an operation for the removal of a tonsillar tumor.

The typical superior pharyngotomy of Gussenbauer, according to Bergmann, is performed as follows: An incision is made from the ear to the greater cornua of the hyoid bone. The posterior belly of the digastric is sought and identified, and the parts beneath and back of it are divided well into the submaxillary region. C. Weil, as well as Miculicz, prefer, in superior pharyngotomy, to make the incision seven to eight cm. in length behind the ascending ramus of the inferior maxillary bone, including the parotid gland if necessary; they are careful to keep the facial nerve intact. The incision is then carried along the lower border of the horizontal portion of the bone, and a double ligature is placed upon the facial and lingual arteries, and the vessels divided between. In this incision the operator is at once brought to a level with the tonsil.

The inferior operation, however, is really the only true *pharyngotomy*, inasmuch as it is only possible to incise the pharyngeal wall in this limited incision. On the other hand, the superior operation is only resorted to for the extirpation of neoplasms, with more or less removal of the pharynx itself, and thus becomes a true *pharyngectomy* (C. Weil, Heine, Gussenbauer, Ch. Monod). It has been customary heretofore to speak of the operation for gaining entrance to the pharynx by external incision as a "pharyngotomy," although, strictly speaking, this name is not applicable to the operative procedure under consideration.

Langenbeck, in 1879, employed an incision for opening the pharynx before extirpating a portion of it, as follows: He begins at a point midway between the symphysis menti and the angle of the jaw. This incision, descending, crosses the greater cornua of the hyoid bone, and, following the direction of the sterno-thyroid muscle to the level of the thyroid cartilage, is continued even lower down, if necessary. The superficial veins being divided between two ligatures, the superficial fascia is opened, and the omo-hyoid and middle fascia are incised. At the level of the hyoid bone a deeper incision is made, and the lingual and superior thyroid arteries sought for and tied, as well as the facial vein and thyro-linguo-facial venous trunk. The hypoglossal nerve need not be disturbed, but the two branches of the superior laryngeal nerve are always divided. This space is still further increased by freeing the hyoid attachment of the digastric and stylo-hyoid muscles. The pharynx may now be incised to the extent of the part exposed.

In true *pharyngectomy*, or the operation for the removal of neoplasms from the buccal and tonsillar regions, the procedure may be executed with or without section of the inferior maxillary bone. That without bony section is the one credited by Bergmann to Nussenbauer. Such an operation was performed by Heine in 1875, and published by C. Weil in 1881.

With the view of gaining more room for the extirpation of a cancerous growth implicating the pharynx, as well as to more successfully control hæmorrhage, Bilroth, in 1861, divided the inferior maxilla. Since then surgeons have adopted, when necessary, this expedient in the removal of tonsillar tumors. In some instances it has only been necessary to separate the divided portions of the bone, while in others a portion of the angle of the jaw has been resected. Miculicz makes a subperiosteal resection of the jaw at a point opposite the tonsil, removing a portion of the bone, and thus procures a large working space.

To Cheever, of Boston (1869), however, belongs the credit of having first systematized the operation of superior pharyngectomy with bony section, for the removal of tonsillar tumors. This surgeon now makes an incision upon the inferior border of the lower jaw, and having removed any implicated glands, he saws through the inferior maxilla in front of the masseter. After section of the hyoid muscles, the bony fragments are pushed apart, and the fingers of an assistant, passed through the mouth into the pharynx, crowds the tonsil outwards, thus rendering ablation of the neoplasm easy (1878). In his earlier operations, Cheever made a second incision along the anterior border of the sterno-mastoid, which bisected the one above described at its middle. Hueter, in commenting upon Cheever's operation, relates that in 1865 he himself excised the tonsil after resection of the inferior maxilla, as did also Langenbeck. These, however, were not heretofore published, although Watson, in 1869, also operated in a similar manner. To Cheever, therefore, is accorded the honor of having introduced the method into practice.

Kuester, more recently, has published two cases of cancer of the cheek and lateral walls of the pharynx. He reached the neoplasms by making an incision commencing at the angle of the mouth and carried obliquely in front of the insertion of the masseter muscle, and thence to the sterno-mastoid. By sawing through the bone in the same direction, he succeeded in extirpating the neoplasm through the breach made by separating the bony fragments.

Langenbeck has devised a method which has for its object the removal, at will, of tumors from the tonsillar region, as well as neoplasms from the lower pharynx and upper part of the œsophagus. It consists essentially in first dividing the entire thickness of the cheek in a direction obliquely downwards and backwards from the lateral commissure to the lower border of the jaw, in front of the insertion of the masseter muscle; thence the incision curves backwards under the jaw to a level with the sterno-mastoid. Layer after layer is divided in this region, extirpating, in the meantime, any involved glandular structures, and tying the lingual artery. The inferior maxilla is then sawn through obliquely in the direction of the cheek incision, and the bony fragments are separated. This method has likewise been employed by Genzmer; Bergmann also expresses his preference for it.

M. Polaillon advises the following method: An incision is carried along the edge of the sterno-mastoid, from the lobe of the ear to the level of the thyroid cartilage. This allows the freeing of the angle of the jaw and removal of any of the affected glands, as well as ligature of the external carotid artery. In one of his own cases, this surgeon thus tied the common carotid. A second incision, involving the entire thickness of the cheek, is made to join the first at its upper angle. The resulting triangular flap is rapidly detached from the inferior maxilla and depressed upon the neck. Section of the inferior maxilla may be made, if it be found necessary, and a portion removed. Access is thus readily gained to the pharynx and fauces.

According to Castex, Polaillon formerly made a semi-circular incision upon the posterior and inferior border of the jaw, in a manner to circumscribe the tonsillar fossa. A modification of this method consists in making two horizontal incisions, which are afterwards joined by a third extending along the parotid border of the jaw.

For the operative procedure employed in the case herewith reported, it may be justly claimed that it furnishes the operator with the means of gaining ready access to the parts without sacrificing or endangering, when carefully performed, any of the important neighboring nerves or vessels, and that, too, with the infliction of the minimum amount of traumatism. The employment of the the thermo-cautery facilitated the final extirpation of the growth from its pharyngeal site without further loss of blood, or the entrance of the latter into the pharynx and larynx.

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A CASE OF PELVIC ABSCESS.

BY HENRY N. READ, M.D.

Read before the Medical Society of the County of Kings, May 15th, 1888.

Abscess of the pelvis from disease of the bony parietes, or from disease of the spinal bones, is an affection rather of childhood than adult life; yet grown people are by no means exempt from this formidable accident. The diagnosis of pelvic abscess, in the earlier stages, is one of the most difficult problems with which the surgeon has to deal when it occurs in the adult; and this is no doubt partly due to the fact that we are not apt to suspect its existence in these patients, whereas we are usually on our guard in the case of children, or, rather, on the lookout for it.

In no case is the early recognition of the trouble more important to the patient's life than in the intra-pelvic abscess, and delay in diagnosis, or misinterpretation of symptoms, will almost invariably lead to an unfavorable result and fatal complications. At best these cases are dangerous, tedious, and are frequently followed by deformity; and even to obtain this result a prompt discovery of the mischief must be made.

The following interesting case, strikingly illustrative of the foregoing remarks, came under my observation last winter. I was requested to assume the professional care of Mrs. B—— on the 15th of December, 1887, with the information volunteered that she had been sick a long time, and was supposed to have consumption of the bowels. I called, and obtained the following history: The patient, Mrs. B——, was a healthy young married lady, who came of a remarkably healthy family, with no inherited trouble as far as known, both parents living and well. In the February preceding the time I saw her, she had slipped on running down stairs, and her feet flying out from under her, she had sat down violently on the stairs. She was stunned, and complained of being *lame in the right leg* at the time, but these symptoms passed of and were not deemed important. She was married in the latter part of the month of April following the fall, and just before her wedding again complained of *pain in the right hip* and side; but again the symptoms passed off without treatment. On her wedding tour, which lasted two or three weeks, she suffered considerably with the pain in the hip and thigh, and was quite lame, so much so that, to use her own words, she "thought she would have to be brought home on a stretcher." The lameness and pain again disappeared, only lasting a few days, and her health seemed good on her return home. She continued well up till June, when, after a few days of languor and general malaise, she was taken with a sharp chill followed by high fever, some tumefaction and pain in right iliac region. The family physician, a homœopathic practitioner, was called in, and this was the first time, it seems, that medical advice had been sought since her fall. Her case was pronounced typhoid fever by the physician, and the inevitable examination of the plumbing followed; this was in turn followed by the, as inevitable, discovery that the plumbing was faulty. Sewer-gas enough to infect the whole household was escaping, with all the additional formulæ common to these occasions. Her fever continued through the months of June and July, and constant pain in the hip and leg was experienced. These symptoms, however, after consultation with a "homœopathic" surgeon, were pronounced nervous or rheumatic, and friction, massage, electricity, and working the limb up and down were tried, with results easily imagined. By the first of August she was much reduced in flesh and strength, and the fever being still unsubdued, and also being accompanied with night sweats, malaria was pronounced to have supervened on the original sickness, and typho-malaria was the name now given to her ailment.

Of course, on the discovery of malaria, her friends were advised to remove her from Brooklyn immediately, as this was obviously the reason the fever did not get well. At great pains and trouble, and with fearful suffering to the patient, she was removed to a fine mountain locality in a very healthy section of the country. Here she was placed under the care of a neighboring physician, who unfortunately took the diagnosis of typho-malaria on trust, and treated her accordingly. No improvement manifested itself till the latter part of August, when "*a dysentery*" set in, with bloody stools and copious discharges of pus. This occurrence was followed by diminished pain in the right hip and side, almost immediate subsidence of the fever and sweats, and in a short time by great general improvement, gain in flesh, appetite, etc., etc.

Strange to say, even now the significance of the purulent discharges and improved general symptoms aroused no suspicion as to the real nature of the disease. The patient now underwent considerable improvement for a month or more, and might have done fairly well but for the unfortunate treatment to which she was subjected. She was made to exercise by riding out, and to walk as much as she was able, which in truth was very little; in standing the leg was always flexed, and only the toe touched the ground. As was to be expected, all her unfavorable symptoms soon returned from the efforts to use the limb, and she gradually lost ground. She remained in the country till the latter part of November, when she was brought home. I saw her, as stated, on the 15th of December for the first time. The patient was about twenty-four years of age, and presented the appearance of a person in the third stage of phthisis. Extreme emaciation, pallor, and exhaustion were present. Temperature 103°, with considerable perspiration. Digestive system fairly good; lungs, heart, and kidneys normal. Menstruation had not taken place since she was taken ill six months previous. In spite of her condition, the patient was bright and hopeful of recovery, and bore her sufferings with great courage.

An inspection of the limbs as she lay flat on the back showed the right leg flexed on the body at an angle of about 135° and slightly inverted, the pelvis a little tilted to the left. In the right iliac fossa a swelling of moderate size was noticed, which gave slight fluctuation, but neither heat nor redness, nor was it particularly painful on pressure. Any attempt to bend or move the thigh in its socket showed intense fixation of the joint, accompanied by great pain, the muscles holding the head of the femur so firmly in its place that a very considerable amount of force would have been necessary to overcome them. Neither rotation, flexion, nor extension could be obtained without the exhibition of unjustifiable force. On bringing the right leg down flat in the bed and parallel with the left leg, lordosis was markedly shown. Accommodation was affected at the junction of the spine and pelvic bones, and the angle of fixation of the thigh upon the pelvis was unchanged. Rectal examination could not be accomplished on account of the severe pain it gave. Vaginal exploration showed the uterus normal in size and position, with no adhesion. A swollen, boggy mass was felt on the right side of the vagina. Pressure upon each side of the iliac bones gave great pain; pressure on the trochanters, some pain, but less than the other manipulation.

The diagnosis of pelvic abscess from some bony lesion, with possible involvement of the hip-joint, was made. It should be stated here that the pain the patient experienced was of a deep-seated, burning character, always worse at night, and the point of maximum intensity seemed to be between the great trochanter and crest of the ilium, on the other side of the buttock and along the anterior surface of the thigh. Careful examination of the spine elicited no pain or tenderness on pressure, and no deformity.

The condition of the patient precluded any attempt at operative interference, and general indications were all that it was deemed wise to adopt. She was made as comfortable as possible in bed, the leg supported by pillows, and she was placed somewhat on the left side, as this was the position that she felt easiest in. Hot poultices were applied to the abscess and hip, relief from pain was obtained from anodynes, and the most nutritious kinds of food with stimulants were freely administered. Her condition remained about the same for a few days, when copious discharges from the bowels took place, followed by complete subsidence of the swelling in the groin. On examination, these discharges showed slight streaks of blood mingled with large quantities of pus of a very fœtid kind, and numerous pieces or sloughs mingled with it. No pieces of necrosed bone or bony detritus could be found.

These discharges proved conclusively that the abscess had burst into the lower bowel, and that this was indeed the cause of the supposed "dysentery" in the summer. The behavior of the case was similar at both times, except that the patient was now much more reduced.

An unfavorable prognosis was given of the case at the time, though she improved very much in many ways after the discharge of the abscess.

Dr. F. W. Rockwell was invited to consult with me at this time, and confirmed the diagnosis of pelvic abscess, but without involvement of the hip. His prognosis was likewise unfavorable. As the tumor in the iliac region again appeared quite prominent in a short time, an attempt was made to aspirate it, with a view to incision, irrigation and drainage; but, on the injection of a small quantity of a 4 per cent. solution of cocaine, the patient's symptoms became so alarming that all operative interference had to be abandoned, and it was deemed wisest not to interfere with the effort that nature was evidently making to drain the abscess.

The case dragged on through the winter, sometimes improving—indeed, at times the patient showed most surprising vitality—but gradually sinking lower and lower under the pyæmic infection. In the latter part of February the tumor in the groin became so very swollen that, at solicitation of the friends, and in the hope of being able to obtain better drainage for the pus, I made a slight opening into it with a bistoury. Very little pus, however, escaped, but a large quantity of gas rushed out and the swelling immediately went down. The gas in all probability had escaped from the gut into the cavity of the abscess through the same opening by which the pus ran into the bowel. A long probe passed freely in all directions, but nothing could be felt, and the opening was immediately closed and healed in a few days

The patient during the last month of her illness complained of great pain over the sacrum, and examination showed a slight shrinkage towards the left side, at the junction of the spine and sacral bones. These symptoms were interpreted to mean that the origin of the trouble was doubtless to be found at this portion of the spine.

She finally died of pyæmia on the 15th of March. To my great regret, no autopsy could be obtained, and consequently the exact origin of the trouble can only be surmised. From what has been previously said, however, I am inclined to think that the lesion was in the spine near the junction of the sacrum, but not in the articulation. The fall in the winter previous had undoubtedly been the cause of the injury to the bone, and the succeeding symptoms had only been those of successive stages of the abscess forming and discharging.

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IMMEDIATE OPERATION FOR COMPLETE RUPTURE OF THE PERINEUM, WITH THE HISTORY OF A CASE.

BY F. W. WUNDERLICH, M.D.,

Surgeon to St. Peter's Hospital.

Read before the Brooklyn Surgical Society, April 5th, 1888.

Lacerations of the female perineum incident to parturition are of frequent occurrence. Various methods of avoiding these lacerations have been recommended. To introduce fingers into the rectum, and push the head forwards towards the pubis; to push the perineum back over the presenting part; to separate the labia and push them back; to press upon the head, to prevent too rapid progress of the labor; to make firm pressure on the perineum for the same purpose.

Our object should be to prevent extension as much as possible until the suboccipital region of the fœtal head has reached the arch of the pubis; and allow the head to extend gradually, to give time to the perineal body to expand.

If there is a disproportion between the circumference of the vulvar orifice and the circumference of the head that has to pass through it, or if the perineum is unyielding and rigid, every method will fail. The completion of the fourth stage of parturition is possible only through adequate dilatation or rupture of the perineum.

In consideration of the large share to which a woman's health and happiness depends on the integrity of her perineum, every possible effort should be made to prevent laceration; but if it has happened, the physician should inform the patient of the mishap and perform the primary or immediate operation—that is to say, unite the wound accurately with sutures.

Spiegelberg says[1]: "Every laceration, even the smallest, should be united, because it is easily done and causes very little pain; and if left to nature, the union will be imperfect, and only in its original form is the perineum a perfect pelvic floor."

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[1] Lehrbuch der Geburtshuelfe, p. 629.

Reasons for and advantages of the immediate operation are:

1. The patient is not kept in bed much longer than she should remain after parturition.

2. At no subsequent time is the same possibility of restoring the parts to their normal condition.

3. Perfect apposition is more readily secured than at any subsequent period, and loss of tissue by ulceration and denuding is avoided.

4. A raw surface is closed up, from which infection might take place.

In case of failure nothing is lost.

It is, however, much more important to secure immediate union after a complete rupture of the perineum, since the sphincter ani and other muscles deprived of their central attachment in the course of time will retract more and more, and are liable to undergo fatty degeneration, rendering a complete cure by a secondary operation impossible. Although the secondary operation may be successful in respect to the union of the raw surfaces, the control over the sphincter is not regained.

Opinions do, and at all times will, differ as to the necessity of coaptation with sutures of partial lacerations.

This should have no bearing on the question of immediate operation for complete laceration.

Distinct separation should be made of operations for partial and complete laceration; and I shall here consider only the immediate or primary operation for complete laceration of the perineum.

When a laceration has extended through the sphincter and recto-vaginal septum, the parts should be brought together with sutures immediately after delivery, or within twelve hours subsequent.

The necessity of the immediate operation having been established, the question arises: What is the best procedure to bring the parts in perfect apposition, and keep them so sufficiently long to obtain good union?

When the rent in the septum is over one inch in length, Emmet's operation is inadequate for the union of the parts.

Mundé (Minor Surgical Gynecology, 2d edition, p. 488, 1885,) says: "In complete laceration involving the septum, I should first unite the rent in the latter separately, knotting the stitches in the rectum and cutting them short, and then proceed as in partial laceration. The rectal stitches can be allowed to cut out, or catgut may be used."

I have used separate rectal, vaginal and perineal sutures, after the method of Simon, in two primary operations, which I had occasion to do in March and April, 1884.

I first closed the rent in the rectum with interrupted silk sutures, tied them in the rectum, and cut the ends short.

The rent in the vagina and the perineal wound I also closed with interrupted silk sutures.

The first case was complicated with corrosive sublimate poisoning in consequence of vaginal irrigations with a 1.2000 solution. It caused severe colitis, hyper catharsis, with violent tenesmus; came near killing the patient, and prevented the healing of the perineum. The patient finally recovered, and was cured by a secondary operation.

In the second case a small recto-vaginal fistula remained, which closed subsequently without further treatment. I believe the fistula was due to the cutting through of a suture, which had been inserted with a Hagedorn needle.

In the primary operation it is by no means easy to obtain and maintain perfect coaptation of every part of the wound, if silk sutures are used exclusively. The sutures in the rectum it is difficult to tie in such a manner as to secure perfect coaptation and the proper degree of tension, neither too tense, when they are apt to cut through, or too loose, when after a short time they allow the parts to separate.

There is this disagreeable feature about silk sutures in the rectum, they can only be removed with great difficulty, and have to ulcerate out in the majority of cases. Moreover, the healing of the wound is much more likely to be disturbed by an evacuation of the bowels, if knots are present on the surface of the mucous membrane of the rectum, than it will be if the sutures are buried in the tissue adjacent to the rectum, and pass just above the border of the rectal mucous membrane without penetrating it.

The difficulties inherent to the use of silk or other sutures in the rectum can be avoided by employing a form of buried catgut suture, devised by Lauenstein for perineorrhaphy, and first described by him in the Centralblatt f. Gynækologie, No. 4, 1886. He devised it for the purpose of securing close coaptation of the edges of the vaginal mucous membrane, without having any stitch holes in the mucous membrane, through which infectious material might find ingress from the vagina into the wound.

Lauenstein inserts the point of a curved needle into the raw surface of the wound, about one-half ctm. from the edge, and sweeping around causes the needle to emerge close to the mucous membrane without penetrating it; on the opposite side he inserts the needle beneath the mucous membrane, and sweeping around causes it to emerge upon the raw surface about one-half ctm. above. The suture is drawn together, tied, and the knot left in the wound.

He then either proceeds in the same manner with a continuous suture, or cutting the ends short, uses more interrupted sutures, until the vaginal mucous membrane is coaptated.

He first tried this suture in a secondary operation for complete rupture of the perineum. He first closed the rent in the rectum with five of the described sutures, submucous he calls them ; the vaginal wound also with five interrupted submucous sutures ; the perineal wound with seven silver wire sutures. Result was perfect union, and a good perineum.

Subsequently he used this suture in three secondary operations for partial laceration of the perineum, not involving the rectum. He sewed the vaginal wound in the manner described ; in one of these cases he had to insert several buried catgut sutures to obtain apposition of the deeper parts of the wound ; the perineal wound he closed twice with silver wire sutures, in the third case with continuous catgut suture.

He had good union in each case.

Lauenstein's suture not only lessens the danger of infection, but has other advantages, which render the technique of the operation for complete rupture of the perineum much easier.

The sutures are not only inserted, but also tied under the supervision of the eyes ; in tying, the operator draws them towards himself, not away, as is the case with the silk sutures, which have to be tied in the rectum and vagina ; the coaptation of the mucous membrane is more perfect, and the degree of tension can be better regulated.

H. Fritsch (Centralblatt f. Gynækol., No. 30, 1887,) describing his method of secondary operation for complete rupture of the perineum, states that he has inserted no suture through the mucous membrane of the rectum in his operations, but always united the rectal wound with Lauenstein's sutures, since the latter's publication in 1886.

He considers it much superior for this purpose to any other suture.

October 10, 1887, I had an opportunity to make use of the submucous sutures in a primary operation for complete laceration of the perineum ; it was to the best of my knowledge their first trial in the operation under consideration.

I found them to facilitate the performance of the operation, and shorten the duration of it in a remarkable degree.

Closing the rent in the rectum, which on previous occasions I had found an exceedingly difficult task to be obtained with silk or other sutures which have to be tied in the rectum, was rendered easy beyond expectation.

I will now present the history of the case, which illustrates in a striking manner on the one side the inadequacy of the means at our disposal to prevent very extensive laceration under unfavorable circumstances; on the other side the advantages of the immediate operation, and of the method employed.

Mrs. B. F. W., 39 years of age, German, married nine years. First confinement, January, 1881. Premature birth in eighth month of pregnancy. Child deformed. Transverse presentation; protracted labor; delivery by turning. Dr. R. Hesse and Dr. W. Wallace attending. Complete laceration of the perineum. Operation by Dr. R. Hesse three weeks after confinement; the parts failed to unite. Dr. R. Hesse operated again several weeks subsequently, but failed to obtain union. The case passed into the hands of Dr. A. J. C. Skene, who operated about six months after confinement, with favorable result.

Mrs. W. came under my care in March, 1886; she had increased considerably in weight and flesh, and was at that time suffering with gouty affections of the feet.

Second pregnancy began in the latter part of December, 1886.

Aside from discomfort due to obesity and varicose veins, she felt well during pregnancy.

She had slight pains on October 9th, and a dose of castor oil was administered with a view to evacuate the intestines as much as possible and have the pelvis free for the passage of the head. Regular pains commenced about nine o'clock, P. M. of the same day, I was called about 12.30 A. M. On examination, found the os sufficiently dilated to admit two fingers, but it was rather rigid. Vertex presentation, ocipito-iliac, left anterior. The pains were strong and vigorous The patient bore them well, but the progress was very slow. About 5 A. M. the membranes ruptured during a strong pain. After a short lull the pains returned with increased strength.

During the pains, Mrs. W. complained that something was tearing, before the head caused any external distension of the perineum. At the same time I could feel, with my hand in contact with the perineum, that some of the deeper structures were being lacerated.

I intended, and everything was ready, to administer chloroform for the purpose of retarding the progress of the head as soon as it would descend sufficiently to distend the perineum. For some time there was very little progress, although the pains continued to be strong,

About 6.45 A. M. a sudden strong pain forced the head through the lacerated perineum with a jerk.

I developed the shoulders and hips slowly, to avoid further injury to the parts.

The placenta was expelled after a short interval without aid, the uterus contracted firmly, and the hæmorrhage was comparatively slight.

Examination revealed extensive laceration of the perineum into the rectum.

The child, female, weighed 11 lbs. 8 oz.

It was not necessary to explain the nature of the injury to the patient, who is an intelligent lady. She was aware of the laceration, and had expected the mishap. She expressed the wish to have the immediate operation done, and hoped it would be successful. I made the necessary preparations, and, with the assistance of Dr. Gildersleeve, Dr. Raynor, and a nurse, I proceeded to unite the lacerated parts at 10.30 A. M.

Dr. Raynor administered chloroform to the patient. When anæsthetized, she was placed upon a firm table before a window admitting good light. Rectum and vagina were syringed out with boiled water. The perineum and anal region were shaved. After these cleansing processes, the patient was placed in the position for lithotomy. A Sims speculum was introduced to lift up the anterior wall of the vagina, and to bring into view the seat of the injury. The speculum was held in position by Dr. Gildersleeve, who supported at the same time the left leg, while the nurse supported the right leg.

It was now ascertained that the anterior wall of the rectum was involved to about two inches above the sphincter; there was also a rent in the posterior wall of the rectum, near the anal orifice, three-eights of an inch long.

The laceration extended upwards in the vagina on both sides of the columna rugarum posterior, higher on the left side than on the right.

I pushed a clean sponge, with a string attached to it to facilitate and insure its removal, into the upper part of the vagina, to avoid having blood from the uterus flowing over the wound and obscuring the view.

I first sewed the rent in the vagina, on the the left side of the columna rugarum, with interrupted black silk sutures, until I reached the upper angle of the wound in the rectum. The rent on the right side I sutured in the same manner; also the rent in the rectum.

I now grasped, with a Hagedorn needle holder, a round, curved needle threaded with medium-sized juniper-oil catgut; inserted the needle in the surface of the wound, close to its upper angle, about one centimetre from the margin of the rectal mucous membrane; sweeping around in a circle, brought the needle out immediately above* the rectal mucous membrane; inserted the needle on the opposite side immediately above the margin of the rectal mucous membrane, and, sweeping around in a circle, brought it out about one centimetre above on the surface of the wound.

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*Above is used with reference to the position of the patient during the operation.

The second suture was inserted in the same manner before the first suture was tied, the knot being left in the wound, taking care to have it secure and not cut the ends too short.

The third suture was inserted before the second was tied, and so on until the rent in the rectum was closed.

This is preferable to the insertion of all sutures prior to tying them, because one can estimate at once the effect of each suture, and place the next where it is most needed and will do the most good.

For coaptation of the vaginal wound and perineal part of the laceration, I inserted interruped black silk sutures.

After these sutures had been tied, the sponge was carefully withdrawn from the vagina. Subsequently the vagina was syringed out with boiled warm water, the external parts cleaned and dried, vaseline applied over the line of sutures, a pad of absorbent gauze applied to perineum, a towel tied loosely around the knees, and the patient returned to bed. The patient slept several hours, and had no nausea.

At 8.30 P. M., T. 99°, P. 96. She had very little pain, and asked for food.

The after treatment consisted in restriction of diet, to beef-tea and oatmeal gruel during first forty-eight hours.

No milk was allowed during entire convalescence, because it has a tendency to produce bulky, tenacious stools.

No vaginal irrigations were employed; and no catheter was introduced to withdraw the urine, because both are liable to disturb the wound.

A tablespoonful of glycerine was administered every evening, with the object of rendering the stools soft without producing catharsis.

The nurse was directed to change the pads frequently, to irrigate the perineum twice a day with warm water, and to apply vaseline over the line of sutures whenever the patient desired to pass urine.

October 11th, P. 65, T. 98.4°. Patient slept during the greater part of the night. Has very little pain, but great desire for food. Was kept on beef-tea and oatmeal gruel. Passed urine without difficulty or pain. No rise of temperature in the evening.

October 12th, P. 70, T. 98.4°. Patient had some pain in the breasts; the breasts were swollen, but secreted very little milk. No pain in the wound. Lochia moderate. Patient complained of being hungry, and was allowed an egg and a small piece of toast twice a day in addition to beef-tea and gruel.

October 13th, P. 70, T. 98.4°. Breasts continue to be painful.

No pain in the wound. Lochia paler and moderate in amount.

At 8.30 P.M. patient had a soft stool, which caused no pain, and apparently did not disturb the healing of the wound.

Bandage around knees was discontinued.

Oct. 14th, P. 65, T. 98.4°. Pain in breasts diminishing. No pain in wound. Appetite good.

October 15th, P. 65, T. 98.4°. Had another soft stool this morning, without pain or disturbance of the wound. Patient was allowed beefsteak and bread in addition to the other food.

She continued to progress favorably.

October 18th I removed the external sutures and two sutures from the posterior wall of the rectum.

October 22d I removed the sutures from the vagina, and found good union of the entire laceration.

October 23d she was anxious to leave the bed, and was placed in a chair for some time.

October 25th.—Feels well and cannot be restrained any longer.

She has been in good health since. Her perineum and sphincter ani have performed their functions as well as they did before the birth of the child.

In conclusion, I will say:

If the presence of a laceration has been discovered, its extent should be ascertained by a careful ocular and digital examination; and if found to be a complete laceration, the importance of immediate and efficient action should be kept in mind.

The difficulties of accomplishing perfect coaptation of all the parts torn should not be underrated. If the physician is not prepared to act efficiently, it is by far better to defer the operation for several hours to make the necessary preparations for it and secure a sufficient number of assistants.

Three assistants are necessary, but four would be preferable.

Round needles without any cutting edge should be used, to avoid unnecessary hæmorrhage, and to have less danger of sutures cutting through.

Perfect asepsis of the operator and assistants, of the instruments, sponges, and the material for sutures, is essential to the success of the operation.

For syringing and cleaning the vagina and rectum, plain boiled water should be used.

Corrosive sublimate and carbolic acid solutions are inadmissible for this purpose. Poisoning from both agents has resulted so frequently that they should not be used in any of these cases.

Moreover, I am convinced their use interferes with primary union.

DISCUSSION.

Dr. Richardson.—I have had no experience in the immediate operation for complete rupture of the perineum. I have had a number of operations which were all, however, for partial laceration, and of course in that case any judicious practitioner would perform the immediate operation; but I should certainly be in favor of performing the operation referred to in Dr. Wunderlich's paper.

I am very greatly interested in the paper the doctor has just read, and as in operating for partial rupture of the perineum, so I would in complete rupture of the perineum favor the immediate operation. But I doubt very much whether we would always find patients as willing and anxious to have the operation performed immediately, as the one the doctor relates of. I think there is a tendency on the part of patients to defer operation, after having undergone more or less shock as the result of parturition. A physician has got to urge it and put before them very clearly the dangers of deferring and the trouble which would naturally arise. Where there is complete laceration, and the shock is far more, I think it is comparatively rare that you would find a patient who would submit to an operation, especially several hours after parturition. Where it would be possible, I should certainly favor it as we would undoubtedly get better results.

Dr. Lewis.—Mr. President, I do not see how there can be any question in regard to the operation for the more severe forms of rupture of the perineum. I think the description which the doctor has given is a very valuable one, and I believe the point which he makes is very good, that it should be done as early as possible, as soon as all the arrangements can be made, such as proper condition of light and assistance, so that the operation may promise success.

As Dr. Richardson has said, there is a great shrinking from any operative interference after confinement. I believe, as Dr. Emmet has said, that the perineum is not the true support of the uterus, and he likens it, if I remember rightly, to the leg of the pants being supported on the boot—it is not the boot that supports the leg of the pants or only to a slight extent. When the other supports are weakened then the perineum comes in, but I think the office of the perineum as a support for the uterus, in the normal condition, is considerably overestimated.

Dr. Rockwell.—I suppose there can be very little doubt among practical surgeons as to the propriety of closing any wound that may be closed at once. Theoretically all classes of lacerations should be closed at once, but many of the minor cases of laceration heal rapidly, without suturing.

This is not true with regard to the more serious forms. I have had very little obstetric practice except operative for the last few years, but some time before that I made it an invariable rule so far as I could control the cases, to operate promptly and at once. I have operated several times before the patient came out of the anæsthetic which was given in order to facilitate instrumental delivery, and with almost invariable success. My first case, a laceration extending to the sphincter, was an utter failure, but that lady had so little discomfort that she found relief by the use of a pessary, and declined further treatment, having since borne two children at term.

I remember one primaparous case, in which I ruptured a perineum with the forceps. The perineum was torn through to the rectum. I had with me some chromatised catgut, and I carefully sewed up the perineal wound and also tied a large vessel in the lacerated cervix. It appeared to me as large as the radial artery, and was discharging blood out of the vagina in great amounts. I thought it was the circular artery, and I think so to-day. I used catgut for the ligature, and put in two or three stitches of the same material through the cervix, not expecting union but simply for pressure, and then sewed the perineum. The mucous membrane was torn off from one labium majus, but I sewed that up, and used irrigations of warm water, as I have the same belief in regard to carbolic acid as the author of the paper. I think it tends to increase the hæmorrhage and hinder primary union. That case made a perfect recovery, and in a second confinement she was delivered before I reached the house. I promptly informed her that I supposed there was another laceration, but upon examination I found none at all; yet she had been delivered unattended of a fairly large child. The child was expelled rapidly and there was no trouble whatever. She is now fairly well, so far as I know.

I remember another case, rather a unique one, in which I was recently summoned by an old practitioner to assist him in an instrumental delivery. He told me he expected to rupture the perineum and wanted me to sew it up. He put his patient under an anaesthetic, delivered with the forceps, and tore the perineum pretty well down to the rectum. I sewed it up, took my instruments and left the house, and the patient never knew that a second doctor was in attendance. He took the stitches out at the proper time and told me he had a perfect result. I do not think there can be any doubt as to the propriety of immediate treatment where competent assistants can be had. I have operated two or three times, however, as late as twelve and even twenty-four hours after the labor and with very good results. So there is no reason to undertake the *immediate* operation, in the true sense of the word, in cases occurring at unreasonable hours or where assistance is not available, when by waiting a few hours we can operate under more favorable circumstances, and with more certain prospects of success.

Dr. Lewis.—I want to mention a case that occurred in my experience. It was a case of breach presentation, with deformed pelvis, and it was unavoidable that the whole floor should be ruptured. Dr. Jewett operated for me in this case, which was a very complicated one. I gave the anæsthetic while he delivered and repaired the perineum under the same anæsthetic, and the patient made a good recovery. She got union of the perineum, and so far as the perineum is concerned is well to-day.

Dr. Wunderlich.—In complete lacerations involving the septum, the difficulties of securing perfect coaptation of the parts should not be underrated, and unless sufficient means are at hand to secure it, it will be better for the welfare of the patient not to be too hasty in making the immediate operation; but rather defer it for a few hours, in order to make the necessary preparations, and secure sufficient assistance.

It is necessary to secure perfect asepsis of the operator, instruments, and everything connected with the operation.

I am decidedly opposed to the use of corrosive sublimate or carbolic acid solutions for irrigation of the vagina and uterus, because poisoning has frequently resulted from their use, and I believe they interfere more or less with primary union.

In regard to the use of wire in this operation, I admit that silver wire has the advantage of being aseptic at all times, but it is more difficult to manipulate than silk, and silk can be rendered aseptic.

I prefer silk sutures to wire sutures, because they are more easily inserted and removed; the proper degree of tension is more readily obtained; they have less tendency to cut through; and last, but not least, they cause less pain to the patient.

Silver wire sutures as devised by Dr. Emmet for the secondary operation are inadequate for the coaptation of the parts, if the laceration extends over an inch above the sphincter.

Emmet recommends the immediate operation, but gives no directions how the operator should proceed in extensive lacerations.

Spiegelberg and Zweifel give directions for coaptation of the laceration with different sets of sutures in rectum, vagina and perineum. The sutures which close the rent in the rectum are inserted first, and tied in the rectum; a deeper set of sutures is inserted to obtain coaptation of the rent in the vagina, they are tied in the vagina; and finally superficial sutures are inserted to close the external wound.

As I have stated in the paper, I have made use of these sutures in two immediate operations, and several times in secondary operations; in every instance I found it very difficult to tie the knot in the rectum in such a manner as to secure the proper degree of tension and perfect coaptation of the parts. All these difficulties are easily overcome by the use of the submucous sutures of Lauenstein.

WM. M. THALLON, Secretary.

OPHTHALMIA NEONATORUM: ITS CAUSE, PREVENTION, AND TREATMENT.

BY THOMAS A. JOYE, M.D.

Read before the Medical Society of the County of Kings, May 15th, 1888.

It is an occasional experience with those who have very much to do with eye troubles to meet forms of disease where the danger to the organ of vision is not appreciated, and where the remedies prescribed are wholly inefficient as curative agents. In no class of cases is this more noticeable than in the ophthalmia of the newborn. The purpose of this paper is to bring more prominently before the general practitioner of medicine the necessity for a thorough inquiry into the form of disease which, under the best surrounding conditions and treatment, often ends disastrously. When it is understood that ten per cent. of the cases in our asylums are the result of ophthalmia neonatorum, and that a much larger percentage have suffered the loss of one eye, or have had the vision of both sufficiently impaired to prevent those so affected from engaging in pursuits that otherwise would be open to them, the necessity for greater care of the eyes of the newborn will at once be apparent. A table compiled by Mules,* from the records of the Manchester Eye Hospital, is of the greatest interest, showing, as it does, not only the percentage of ophthalmia neonatorum among general eye disease, but also the complications developed and the damage sustained by the eye in that form of disease. Below is given the number of cases presenting themselves at the Manchester Hospital for ten successive years ending in 1886, with the cases of ophthalmia neonatorum selected from them.

1876—	7,477	general eye diseases	include	290	ophthalmia	neonatorum.
1877—	8.325	"	"	313	"	"
1878—	8,591	"	"	413	"	"
1879—	8,573	"	"	270	"	"
1880—	10,262	"	"	423	"	"
1881—	10,919	"	"	400	"	"
1882—	12,961	"	"	539	"	"
1883—	14,702	"	"	358	"	"
1884—	15,427	"	"	310	"	"
1885—	15,184	"	"	198	"	"
Total,	112,421			3.517		

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* Manchester Med. Chronicle, 1888, vol. vii.

COMPLICATIONS.

One or both cornea were affected	234
" cornea only was affected.	148
" eye lost in	37
Perforation of cornea in one eye	24
Ulcer " " "	61
Leucoma " " "	5
Cornea hazy in one eye	22
Both cornea affected in	85
Both eyes lost	15
" " perforated	8
Both cornea ulcerated in	30
" " leucomatous in	3
" " hazy in	10
One eye lost, ulceration in other	7
" " other leucomatous	3
" " ulceration of cornea in other (lead deposit)	1
One eye lost, ulceration of other cornea	5
Total complications	691

This table shows clearly the necessity for greater attention on the part of the general practitioner, as blindness from this form of disease is now classed under the head of preventable; and when we consider that out of 3,517 cases 961 show damage causing more or less impairment of vision, that of these 15 are totally blind, 37 have lost the sight of one eye, 32 had corneal perforation, and 8 were leucomatous, we see at once the necessity for vigilance and care.

Regarding the etiology of ophthalmia neonatorum, the belief is generally accepted that the disease is due to direct inoculation of the conjunctiva by a specific poison at the time of birth or shortly thereafter. Credé[*] insists that catarrhal secretions from the vagina will not produce true blenorrhœa; Hausmann says that gonorrhœa or leucorrhœa will produce it, and that the vaginal secretions may be infectious. Cohn[†] distinguishes two forms of purulent ophthalmia; one he considers to be a true, infectious blenorrhœa, in which the gonococcus of Neisser is found; and the other form, a suppurating conjunctivitis; the true clinical distinction being that the true blenorrhœa usually involves the cornea, and goes from bad to worse, while the non-specific inflammation tends to recovery. By some it is held that the normal lochial discharges are infectious, but experiments by Andrews[‡] and others have failed to verify such statements.

Inoculation occasionally occurs in utero, as in the case reported by Magnus,[§] and also in retarded labors; especially is this likely in face presentations. Other methods of conveying the virus are the use of sponges, cloths, towels, or other materials upon the eyes of the child after these articles have been used for wiping the genitalia of the mother or the body of the child itself. Ophthalmia usually follows within two days after birth, though it may occur at a later period, being, in the latter case, generally the result of carelessness and want of cleanliness on the part of nurses, who, in washing or handling the child, convey the contagium by the wiping materials or their fingers.

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[*] Archiv. f. Gynakologie, 1881, Bd. xxi., p. 523.

[†] Cohn; Zeitschrift f. Geb. u. Gyn., Bd. xii., cited by Jewett.

[‡] Andrews, N. Y. Med. Jour., xlii., No. 17, p. 451.

[§] Klinisch Monatsblatter f. Augenheilkunde, Bd. xxv., 389.

Having seen the visual disability that so often follows attacks of this disease, the ophthalmologist and general practitioner cannot give too much attention to the question of prophylaxis, and all things bearing on the prevention of a disease which, though in a great majority of the cases preventable, is still attacking the newborn, only to leave them blind or seriously impaired in one of the most exquisite of the senses.

Conscious of the fact that ophthalmia neonatorum was due to an abnormal vaginal secretion, Credé,[*] in 1879, began douching the vagina of women who were known to have gonorrhœa; solutions of borax, carbolic acid, and salicylic acid were used with good results. In December of the same year, he tried the instillation of a 1-40 solution of nitrate of silver upon the eyes of children whose mothers were believed to have gonorrhœa. Before, however, the nitrate of silver was used, he cleansed the eyes of the child with a solution of salicylic acid. This treatment was highly successful, and the percentage of cases of blenorrhœa neonatorum was materially lessened. From June 1st, 1880, all infants were washed in warm water immediately after birth, and a solution of nitrate of silver (two per cent.) was dropped into the eyes. A piece of cloth saturated with a solution of salicylic acid 2-100 was then applied and kept in place for twenty-four hours. During this plan of treatment no attention was paid to cleansing the vagina of the mother, and no case so treated suffered from ophthalmia. Although many mothers were afflicted with vaginal discharges, no injury followed the instillations of nitrate of silver, though not unfrequently slight hyperæmia of the conjunctiva occurred, accompanied by a slight discharge, which generally disappeared within twenty-four hours. For the years ending with 1879, the average number of cases of ophthalmia had been about 10 per cent. The highest being 13.6 per cent. in 1874, and the lowest 8.3 per cent. in 1877. From June 1st, 1880, only one case occurred, and in that because, by some means, the treatment had been neglected.

In 1881, out of 400 births, there was 1 case of ophthalmia neonatorum.
In 1882, " 418 " " 2 " " "
In 1883, " 131 " " 0 " " "

This experience has been confirmed by all observers. In a recent letter from Dr. H. I. Garrigues he states the experience at the Maternity Hospital, N. Y. "We have used this method of treatment in about three thousand cases with complete satisfaction. In our experience it is an absolute preventive, and we have never had serious trouble from it."

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[*] Archiv f. Gynäkol., 1881, Bd. xvii., p. 52.

Acting upon the theory that the greater number of cases were the result of post-partum infection, many authorities claim that attention to the genital organs of the mother by irrigating with cleansing and antiseptic solutions would prevent the occurrence of ophthalmo-blenorrhœa. In an article by Korut,* the author speaks of his experience at the Dresden clinic for women, with Kaltenbach's method of disinfecting the vagina of the mother with a solution of bichloride of mercury, and simply washing the eyes of the child with distilled water. With this method blenorrhœa occurred in three per cent. of the cases, while with Credé's treatment no case of blenorrhœa was observed. Later, the practice of cleansing the vagina of every woman in labor, and giving baths where possible, was adopted. After the hair on the genital organs had been clipped, the external parts were well washed with soap and water, and irrigated with a solution of bichloride of mercury. In every case where there was a suspicious discharge, the mucous membrane of the vagina and cervix was well rubbed with the fingers during the irrigation. During the labor these irrigations were repeated frequently, and as soon as the head of the child was born the eyelids and surrounding parts were carefully cleansed with cotton saturated with hydrant water. After the delivery was complete, but before the cord was cut, the face and head were again carefully washed, after which the child was placed in a bath to wash the remainder of the body. With this method of prophylaxis no case of ophthalmia was observed.

Assuming that, in almost all cases, the infection was post-partum, the strength of the solution for irrigating the vagina was reduced to 1–4000, and finally, no attention was paid to the parturient mother; the infant itself being simply washed with hydrant water in the manner described. Of one thousand cases treated in this manner, four, or 0.4 per cent. were affected with blenorrhœa during the first four days. The conclusions drawn from this were, first, that Credé's method of preventing ophthalmia neonatorum is absolutely certain and trustworthy when properly applied; secondly, that the active part in Credé's method is the nitrate of silver, which is a specific against the gonococcus; thirdly, that the baby's eyes does not become infected in the vagina, but always after birth (face presentations alone, perhaps, making exceptions to this rule); and fourthly, simply that the most scrupulous cleanliness during the birth and puerperal period by the methods detailed is sufficient to reduce these affections to a minimum, if not preventing their occurrence altogether.

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* Archiv f. Gynakol., cited by Am. Jour. Ophthalmology, vol. iv., p. 319.

As opinions differ as regards the time of inoculation, and as the belief is generally accepted that it may take place during the passage of the child's head through the vagina, a simple washing of the eyes with water will not, it seems to me, be a sufficient safeguard. Considering the fact that the vast majority of these blenorrhœas occur in the children of the poor, it is quite impracticable to carry out the elaborate douching and cleansing systems suggested by Kaltenbach and Korn, as in these cases, the physician rarely sees the mother until he is called to attend her, the labor having already commenced. Of course, in lying-in asylumns and like institutions with competent nurses and suitable appliances, the above methods fill a high place, but for the general practitioner for whose benefit this paper was written, Credé's method with the instillation of nitrate of silver will be found the best. Its simplicity, ease, and quickness of application are not the only advantages of the system; but, as it has been proved that the nitrate of silver has the power of destroying the gonococcus even when inoculation has taken place, the exhibition of this agent in Credé's method gives a hope that a commencing ophthalmia may be aborted, or its character changed to a less severe type which, recovering, will not leave the visual organ lost, darkened, or impaired.

Following the foregoing considerations of the pathology and prevention of blenorrhœal ophthalmia of the newborn, we come to a subject the importance of which cannot be overestimated; namely, the treatment of the disease when, from want of suitable prophylaxis or other cause, the disease manifests itself. From observation and experiment we know that although there may be forms of purulent ophthalmia not the result of inoculation with a special poison, we at the same time have abundant evidence to prove that the violent and destructive form of this disease is the outcome of the presence of micro-organisms identified as gonococci; and furthermore, not only have these organisms been identified, but, also, the tissues on which they prey and propagate has been determined. This tissue is the cylindrical epithelium of the conjunctiva. According to Heyl,* there are physiological and histological differences between the palpebral and sclero-corneal sections of the conjunctiva. Without considering the physiological difference, I will state the interesting point, that while the sclero-corneal section of the conjunctiva is covered with *pavement epithelium*, *cylindrical epithelium* is the covering of the palbebral portion. As microscopical examination shows that the micro-organism or gonococcus attacks the cylindrical epithelium the difference of the two sections of the conjunctiva is to be borne in mind.

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* Trans. Med. Society of Penn., 1884, quoted by Archiv Ophthalmol., vol. xvi. No. 3.

In taking up the active treatment of blenorrhœal ophthalmia, we have two conditions to combat: first, the special cause; and second, the resultant inflammation. All authorities agree that the epithelial cells of the conjunctiva must be kept in as normal condition as possible if the disease is to be cured. This end is attained by the use of stimulating or antiphlogistic remedies, as the case may be. Leaving aside for a moment the consideration of the general indications, we will commence the treatment by attacking the special cause. Knowing it to be a micro-organism, we at once see the necessity of applying some agent capable of destroying it. Bichloride of mercury, carbolic acid, and the nitrate of silver are among the best. Of these, the weight of authority ascribes the happiest results to the silver nitrate in varying strengths, while the use of a 1–3,000 solution of bichloride of mercury in conjunction as a wash adds to the successful results. In applying the silver solution, although the majority of ophthalmologists depend upon weak solutions (not over five grains to the ounce), fearing that the stronger solutions may be injurious to the cornea, of which I think there is little danger. In obstinate cases, adopting the practice of my friend Dr. Prout, I have noted the most marked improvement in twenty-four hours following the application of a twenty-grain solution. In all cases the application should be neutralized with a solution of salt. The method of using nitrate of silver advocated by Andrews, and which I think is very efficient particularly for home use, or for those not skilled in the treatment of diseases of the eyes, is that a five-grain solution be dropped into the conjunctival sac two or three times a day. Of almost equal importance in the treatment is the necessity for careful and thorough cleansing the eyes; too much stress cannot be laid on this measure, and the physician should see to it that the eyes of the infant are washed at least every hour, so that the eyes may be kept as free as possible from the effects of the irritating discharges. In addition to this, the eyes after each cleansing should be douched with a saturated solution of boracic acid, while vaseline should be applied to the lids two or three times daily to prevent their sticking together.

Regarding the other modes of treatment, many strongly advise the oft repeated applications of hot water. On the other, as many others advocate cold compresses. The oppositeness of these methods may seem startling at first sight, but a moment's thought will clear away the seeming contradictions. In inflammations both heat and cold fill their respective places. When the blood vessels are relaxed, cold will give them tone. Just as in the reverse, choked up with the products of inflammation the hot douche will relax the tissues so as to favor the escape of the clogging material. It would seem then, that hot, dry conditions, with but little discharge, will be ameliorated by warm applications, while when the tissue are macerated and the discharge abundant, the constringing effect of cold will be beneficial. This, then, is the most efficient treatment: Thorough cleansing of the eyes and washings with solutions of boracic acid, or bichloride of mercury, to carry away and disinfect decomposing material, the daily applications of nitrate of silver, and treating the general inflammation with heat or cold as may seem best. Should swelling of the lids and œdema of the conjunctiva become so great as to endanger the eye from pressure, cutting through the external canthus is called for, otherwise destruction of the cornea will almost certainly ensue. When the disease begins as monocular, precautions should be taken to prevent, if possible, the extension of the trouble to the sound eye; layers of cotton sealed with plaster and collodion, or other impervious covering, should be applied to prevent infection, taking care to note from time to time any swelling of the lids or secretion from the eye: this occurring, the dressing should be immediately removed and remedies applied.

In making applications directly to the lids, which is sometimes very difficult because of the great swelling and the struggles of the child, the inhalation of chloroform will facilitate matters, and besides not endanger the cornea, which, if involved, is liable to be ruptured if any force or pressure is put upon the eyeball in attempts to open the lids. Finally, there is one consideration to be held in mind when treating these cases, the physician and attendants must take the utmost precaution, lest from want of careful washing of the hands and nails or from contact with cloths or other materials used upon the diseased eyes, they themselves become infected with one of the virulent and destructive forms of inflammation of the eye.

DISCUSSION.

Dr. Prout.—I have listened to Dr. Joye's paper with a great deal of pleasure. The subject is one of extreme importance. I have seen many cases of ophthalmia in the newly born. When one of any severity is brought to me the wish is very strong that I could send it to some of my friends, for usually there is much room for doubt as to the result, more so than in any other class of cases that I am called upon to treat.

The author of the paper has referred to the use of chloroform, which recalls a case seen several years ago to which I gave chloroform for many days in succession. Both eyes were affected. Nitrate of silver in solution was applied daily, and the child improved so much in general and local condition that I thought milder measures might be resorted to. I used sulphate of copper or alum, a low grade of corneal action supervened, which could not be controlled, and both eyes were lost! Since then I have stuck to the nitrate of silver, from which I have never seen any injurious results. In many cases chloroform, which is very safe with the very young child, is given to prevent pain and struggling during the eversion of the lids, the cleansing of the eyes and the application of the solution of the nitrate, any excess of which is neutralized by salt water. When the cornea is already involved the conjunctival inflammation, which is its cause, must be arrested at any cost, and I know nothing that does this so well as the nitrate of silver. In mild cases mild applications will suffice. As to the frequency of this disease, exhaustive statistics are impossible; but, to show that Dr. Joye's paper is both timely and necessary, it may be well to give a few figures. The institutions named below reported cases as follows:

The Brooklyn Eye and Ear Hospital, in its 19th Annual Report for 1887, 13 cases for the year, and a total of 237 cases since its organization.

The Manhattan Eye and Ear Hospital, New York, 18th Annual Report, to October 30, 1887, 25 cases.

The New York Eye and Ear Infirmary, the oldest institution of its kind in the country, 67th Annual Report, to October 30, 1887, 65 cases.

The N. Y. Ophthalmic and Aural Institute, 18th Annual Report, 1887 38 cases.

The Massachusetts Charitable Eye and Ear Infirmary, Boston, 62d Annual Report, 1887, 37 cases.

The Wills Ophthalmic Hospital, Philadelphia, in 1887, 43 cases.

The Newark Charitable Eye and Ear Infirmary, 1887, 26 cases.

I also have one from Germany, Aachen, in which out of 2,100 cases treated, 36 were of ophthalmic neonatorum.

Many cases are of course treated successfully at home, but the worst cases the specialist sees have had home treatment and are then brought to him with corneas more or less damaged. The cause is direct inoculation of the eyes during parturition or immediately after birth; and hence this disease, which causes so large a proportion of the acquired blindness of any country, is a preventable one. Is it then asking too much of the accoucheur that he shall adopt preventive measures? To what extent these are adopted I do not know. In the Long Island College Hospital these measures are resorted to.

In private practice it is possible for any physician who attends a case of labor, whether he has reason to suspect infection from the maternal passages or not, to make the necessary applications himself at the time of the first dressing of the infant. After the face is washed, a ten-grain solution of the nitrate of silver is to be dropped into each eye, *on the cornea*, and the eyelids moved about so as to bring the solution into contact with every part of the conjuuctiva. Cold applications can then be made to the closed eyelids for a few hours. Only this and nothing more! To do this as a matter of routine in every case of confinement would save many eyes.

The cause of blindness in these cases is the injury that the cornea sustains from the unchecked disease. It is not worth while now to consider these corneal complications. The one point I wish to make and emphasize is that, as ophthalmia in the newly born is undoubtedly a preventable disease, the practitioner should use every means in his power to prevent it. Credé's method, just described, so admirable for its simplicity, can be carried out by any one of us or by any intelligent nurse. It involves no danger to the eyes, and may prevent that most deplorable misfortune, blindness.

Dr. CHARLES JEWETT.—This subject belongs so exclusively to the oculist that it hardly becomes the general practitioner to speak upon it; yet the points dealt with in this paper are of interest to every practitioner, particularly in the matter of prophylaxis. For, while the obstetrician would not feel called upon in private practice to make use of prophylactic lotions as a routine measure, their omission, in case the passages are known to contain the offending virus, I think should be considered culpable. In the matter of curative treatment, most of us would prefer to place the responsibility upon the oculist.

Dr. Prout has alluded to the infrequency of purulent ophthalmia in the maternity service of the Long Island College Hospital. This has been due to Credé's method, which has been in use for several years. A two per cent. solution of nitrate of silver is instilled into the eyes of every child immediately after birth, after cleansing. In no case have we had virulent ophthalmia where this practice has been properly observed. The one or two cases in which purulent ophthalmia has occurred since the adoption of Credé's method have been clearly traceable to its imperfect use.

The obstetric literature of the last few months contains several important papers upon this subject, from which it appears that the experience in German clinics has been somewhat different from our own, and not wholly in accordance with the teachings of the paper. In the BROOKLYN MEDICAL JOURNAL for February will be found an abstract of a paper by Cohn. In 1883 he made a series of observations in the clinic of Schroeder, at Berlin, under the use of different prophylactic methods. The nitrate of silver treatment was attended with a morbidity of 1.5 per cent., and was excelled by the use of a sublimate solution, and even by sulpho-carbolate of zinc, though the latter method was accompanied by careful maternal disinfection.

In another paper the experience of Kaltenbach, at Giessen, was reported by Nebel. This has been referred to by the author of the paper. With thorough disinfection of the genital passages, and bathing the eyes with distilled water, the morbidity was *nil.* Dr. Prout thinks the maternal disinfection impracticable in private practice. It seems to me it is certainly called for, and should not be omitted where the poison is known to be present, and it could easily be passed off as a part of the prophylaxis for the mother against sepsis.

A very excellent review of this whole subject by Ahlfeld, appears in the *Zeitschrift f. Geburtshulfe und Gynækologie*, the first number for the present year. Until 1883 he depended upon the nitrate of silver, but with a certain percentage of ophthalmia cases every year. In 1883 he adopted a one-tenth of one per cent. sublimate solution, and the morbidity was reduced. In 1884 further improvement followed when the strength of the solution was increased to two-tenths of one per cent. In 1885 and thereafter, under the use of a three-tenths of one per cent. sublimate solution, no case of purulent ophthalmia appears in his tables. He cites the experience of the Dresden clinic, where one thousand cases were trusted to vaginal disinfection alone. Virulent ophthalmia occurred in seven cases, and the milder catarrhal form in fifteen. Ahlfeld concludes that both maternal disinfection and prophylactic lotions for the eyes of the child are essential to complete immunity. While the danger is greatest during the labor, he calls attention to the possibility of infection after birth. The surroundings, soiled linen, the lochia, and even the bath-water are possible sources of contagion.

French practice, according to Auvard, consists mainly of maternal disinfection and the use of Credé with hot boric acid douches.

One other matter I beg to mention simply to elicit the opinions of the oculists present upon the value of the method. In the *British Medical Journal* of a month or two ago, there appeared a note by P. H. Mules on the curative treatment of *ophthalmia neonatorum.* He everts the lids to the back fold, cleanses them, and then pencils the conjunctival surface with alcohol. The effect of the alcohol is to remove the water from the tissues, thus rendering them hygroscopic. The surface is then flushed with a one in two thousand solution of bichloride of mercury, which is absorbed by the hygroscopic tissues with a correspondingly thorough sterilization.

Dr. Lennox.—As regards the frequency of blindness due to ophthalmia neonatorum, a consideration of available statistics shows how difficult it is to come to any positive conclusion. Observers are, however, agreed that it causes more blindness than any other single disease. Statistics on this subject are made up from three sources, viz.:

Reports of clinics.

Reports of institutions for the blind.

The general census of the population of a particular district.

In the clinics the proportion, as given by Magnus, is a little less than 11 per cent. This is probably an underestimate, as many cases are not at first brought to the clinics, and later in life they come to consider their blindness hopeless and do not apply for treatment. Statistics from institutions for the blind are also misleading, for children are in the majority in such institutions, and thus the percentage by this method is overestimated (34–41 per cent.). The proportion to the total number of blind in any country is perhaps the most accurate method, but unfortunately such statistics are up to the present time too limited to be of much practical value. Such as have been made fix the proportion at from 13–28 per cent.

In treatment the prophylaxis is certainly of the first importance. In this connection it is of interest to look back as far as 1807, when Gibson, recognizing the nature of the disease, thus formulated the principles of its prophylaxis. He advised: 1st. That any existing leucorrhœal discharge be stopped, if possible, during pregnancy. 2d. If this has not been done, the harmful secretion should be removed from the vagina during labor. 3d. The eyes of the child should without delay be washed out with some fluid which will either remove infectious material or neutralize it. Little attention was however paid to this until Bischoff, of Basel, in 1875, used carbolic acid to wash out the vagina, and salicylic acid for the child's eyes. He thus reduced the frequency of ophthalmia neonatorum from 3.5 per cent. to 2.6 per cent. He had previously washed out the child's eyes with water, a method which had reduced the percentage of cases from 5.6 per cent. to 3.5 per cent. Shortly after this, as the Doctor has told us, Credé published his results with the nitrate of silver.

Of considerable interest are the experiments of Koenigstein in one of the lying-in hospitals of Vienna. He examined and tabulated three series of cases, each including more than a thousand infants. In the first series nothing was done, with the result that there was blenorrhœa in 4.76 per cent. and catarrhal conjunctivitis in 14.5 per cent. In the second series the eyes were washed out with carbolic acid solution (1 per cent.), and the percentage of blenorrhœa fell to 1.42 per cent. and of catarrhal inflammation 6 per cent. In the third series he followed Credé's example, and used a 2 per cent. solution of nitrate of silver, which still further reduced the proportion of cases, blenorrhœa occurring only in .72 per cent. and catarrhal trouble in 4.72 per cent. Credé obtained results even better than this, ophthalmia only occurring in from .1–.2 per cent. in 1,160 cases.

Whatever the agent used, certainly two thing are of importance, viz., the time of its employment and the experience of the person using it. Olshausen found that when carbolic solution was used in the child's eye after tying the cord, he had ophthalmia in 8.8 per cent. of his cases, but that when he used it immediately after the birth of the head, the percentage fell to 3.6, *i. e.*, more than half. That experience in the use of nitrate of silver is of advantage is shown by Felsenreich's reports. He used it in two series of cases, including between two and three thousand cases in each series, and his proportion of ophthalmia fell from 1.9 per cent. in the first series to 1 per cent. in the second.

In the nitrate of silver we certainly have a powerful disinfecting agent, and one that will penetrate a certain distance into the epithelium of the conjunctiva. Weeks has found that a 2 per cent. solution, as recommended by Credé, will destroy microbes in about eight seconds.

Dr. Van Cott.—There is another exceedingly interesting question in regard to the effect of the specific poison of gonorrhœa on the eye which I do not think has been spoken of, and that is the possibility of general constitutional lesions as a result of the local affection. In 1876, Noeggerath, of New York, read a paper on "Latent Gonorrhœa in the Female," in which he divides gonorrhœa into two classes of cases: first, what he calls pseudo gonorrhœa; and second, true gonorrhœa. The pseudo gonorrhœa he says is curable, but the real gonorrhœa he considers incurable and worse than syphilis.

The mild cases—pseudo gonorrhœa—are said to have a coccus which resembles Heisser's gonococcus, excepting that Heisser's germ is a diplococcus, while that of the pseudo gonorrhœa is not.

The question comes up whether the same difference in germs may not exist in the mild and severe forms of gonorrhœal ophthalmia of which Dr. Joye speaks, and whether it is not very possible to get constitutional infection with lasting symptoms from the true gonorrhœal ophthalmia neonatorum.

Dr. Buckmaster.—I wish to say a few words in regard to the cleansing of the vagina. A short time ago I watched a skilled obstetrician doing this, and his method seemed lacking in thoroughness. He used the smallest nozzle of a fountain syringe and gently directed a stream of a bichloride solution into the vagina and then on the vulva. If he had been making statistics he would have said "douche used." To cleanse the parts, a good method is to take a piece of soap —the bichloride soap is excellent—and apply it to the hair of the vulva as thoroughly and much in the same manner as one would scrub his beard. If the canal is large enough the latter may be carried in with the hand and the walls and the presenting part thoroughly cleaned; where it is not of sufficient size the fingers and a soft brush will answer the purpose. Chloroform should be used if it proves painful. I am inclined to think that the term prevention used by the previous speakers would better apply to a thorough cleansing of the vagina rather than of the child's eye.

There is another rather important point in connection with this subject, and that is, that the gonococcus is not very often found in the vagina. Of sixty typical cases of gonorrhœa reported by Conrad, in only five recent and two chronic cases was it found in the female urethra ; however, it is often found, and for this reason I would very much like to see the statistics from the obstetricians in regard to the cases of ophthalmia in connection with the presentation, whether there are fewer cases when the occiput is to the front than where there is face presentation.

I believe if the gonococci produce the trouble we can avoid it by disinfecting the passages, and in doubtful cases it should be done.

Dr. Joye.—In reply to Dr. Jewett, I wish to state that there are no objections to cleansing the vagina of the mother or the lids of the child at the time of birth, such cleansing being very efficient when thoroughly done. The point in the paper, however, was that these methods would be found impracticable in private practice, because in the great majority of cases the disease is met with in the children of the poor who have neither the skill nor the means to apply such treatment intelligently.

Application of alcohol to the conjunctiva is something with which I have had no experience.

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HIP-JOINT DISEASE, WITH SPECIAL REFERENCE TO ITS MECHANICAL TREATMENT.

BY JOHN E. RICHARDSON, M.D.

Read before the Brooklyn Surgical Society, May 17th, 1888.

The prevalence of hip-joint disease, and the serious deformities which result from its neglect or improper treatment, has induced me to select this as a subject to present before this society for its consideration and discussion.

There are in this society some who have had considerable experience in the treatment of this disease, and whose opinions, as the result of such experience, are entitled to great consideration.

The views of eminent surgeons, in this department of surgery, regarding the theoretic principles of treatment, are so antagonistic, and their interpretations of the conditions to be fulfilled are so essentially different, that it is not surprising that serious deformities result, even in cases in which mechanical appliances are adopted early.

These deformities would seldom occur, and excision of the hip-joint ought to be very rarely indeed required, if the disease were correctly treated at its commencement.

I do not propose to give in detail the mechanical treatment of particular cases, but simply to refer to the various forms of apparatus generally adopted, and the objections to them, and give the result of my experience with the mechanical treatment of more than one hundred cases of hip-joint disease.

The character of the early treatment must necessarily be mechanical, aside from the constitutional treatment, which should never be neglected, and the importance of which cannot be overestimated.

If we believe that a large proportion of these cases are scrofulous in character or in their origin, rather than due to traumatism, the outlook for permanent relief or cure will be very discouraging, and we will direct our efforts to paliate rather than cure the disease. The surgeon who adopts this view will be lacking in perseverence and determination in attempting to cure this class of cases, and without these qualities he certainly cannot hope to succeed.

The questions which I desire to submit for the consideration of the society are, first, Which is the more rational treatment of disease of the hip-joint, to secure fixation of the joint or to permit motion during treatment? second, What particular mechanical appliance most nearly fulfills the indications of treatment?

It is of the utmost importance that the symptoms of hip-joint disease should be treated at an early period, and, on the least suspicion of the joint being affected, prompt attention should be given to its treatment. A thorough examination can scarcely fail to reveal the locality of the affection; and yet, when we realize what a struggle children make to avoid an examination, and the objection on the part of parents to see their children thoroughly handled by the surgeon, and the comparatively limited opportunity general practitioners have for observing and becoming thoroughly acquainted with these insidious diseases, we need not be surprised that these local lesions are not more frequently discovered in their incipient stages. It ought not to be considered necessary for a patient suffering from hip disease to manifest all the prominent symptoms which are considered characteristic of it; when these appear the disease has made considerable progress, and there is great destruction of the joint. There would be but little demand for all the great variety of apparatus if cases of hip disease were recognized early, for this is the time when we may expect the best results to follow the mechanical treatment of the diseased joint, or a treatment which has for its basis, rest; neither would we see so much suffering nor the hideous deformities resulting from disease of the hip-joint. When seen late, it is one of that class of cases in which the surgeon feels that, even in adopting the best plan of treatment, greater or less deformity is sure to follow.

From the opportunities of observation which I have had in the Brooklyn Orthopædic Infirmary, I am forced to believe that there is not the same attention given to making a thorough and accurate examination of the hip-joint as in making examinations of other joints of the body. I am inclined to believe there is too great a tendency to rely upon the characteristic symptoms of the disease, and, in the absence of these, conclude that none exists. The early symptoms of hip-joint disease, instead of being recognized as such, are not infrequently, through ignorance, attributed to other causes, especially rheumatism and teething. While these conditions may occasionally produce irritation about the joint, yet in many cases ascribed to them they have nothing to do with it, and the patient's health and life are threatened by delay. If we even suspect that there may be hip-joint disease commencing, it is our duty to insist upon absolute rest, and control motion, thereby preventing friction and pressure. If we would adopt these precautionary measures, many of the doubtful cases would be cured, and in other cases it would be the means of preventing the occurrence of the symptoms which are more formidable, and which we so much dread to see.

In order to secure the co-operation of the parents to carry out successfully and definitely this plan of treatment, it will be necessary to convince them that the most serious consequences to the joint may follow any indifference on their part to see that the surgeon's instructions are properly followed.

If there be an error in diagnosis, and the child is kept in the recumbent position several weeks or longer, there has certainly no harm resulted to the child, but if the treatment has relieved the patient of both the local and constitutional symptoms, there has been no time lost, for the treatment will have been correct, although the diagnosis was not.

When the disease first appears, in addition to placing the patient in the recumbent position, extension should be at once employed, either by the pulley and weights or by an elastic extension splint, interrupted by a bracket; counter-extension is made at the same time from the perineum. Care should be taken to produce extension of the limb in a straight line. If the surgeon does not see the case until the second or third stage has developed, the good results of the treatment will be necessarily interfered with. It will be necessary to place the patient in the recumbent position, with the extension apparatus applied, and keep it on until the contraction of the psoas, iliacus and adductor muscles have been overcome. It will be important to guard against the same angle remaining at the hip, as will occur if the patient is allowed to sit up, and the extension applied to the limb will be of no service. To correct this a Hamilton's long splint may be applied from the axilla to the foot on the sound side. The length of time which it will be necessary to keep the patient in bed will vary from ten days to six or eight weeks, and during this time the hip-joint must be kept perfectly quiet. When the more serious symptoms are under control, one of the portative splints, which will enable the patient to take open air exercise, should be applied.

The proper mechanical treatment of hip-joint disease, and the deformities resulting from it, offer greater difficulties than any other within the range of orthopædic surgery.

Upon the slightest irritation within the joint, the muscles are brought into a state of spasmodic retraction, for the purpose of protecting the articular surfaces from motion; hence, as a posture of ease, there is flexion of the thigh and abduction of the limb; but this bony, muscular rigidity which protects the joint from motion ultimately produces great damage to the joint as the result of this severe pressure. Now every forced movement, together with the weight of the body, is transmitted directly to the joint because of this rigid condition of the muscles. The greater the muscular contraction to avoid motion, the greater the pressure and injury to the articular surfaces; and by this violent mechanical pressure the most intense pain is produced.

The object aimed at by all the various mechanical appliances is to produce a separation of the head of the femur and the cavity of the acetabulum in which it rests, thus preventing pressure of the parts.

It is also essential that the spasmodic contraction of the muscles should be overcome by wearying them, and thus correcting deformity. The joint should also be relieved of the superincumbent weight of the body. There is, however, a great diversity of opinion as to the advisability of preventing or permitting motion of the joint after extension has been accomplished during the treatment of the disease.

The mechanical appliance which best fulfills these indications is the one which will give the best results in the treatment of this disease.

Many and varied are the mechanical appliances for the treatment of hip-disease. Some are exceedingly simple, while others are very complex in their mechanism, varying according as the different surgeons who have devised them have interpreted the conditions to be fulfilled.

It is absolutely essential that the surgeon should understand the correct theory if he would have good results follow his treatment by mechanical means; for a surgeon who is guided by a knowledge of the right theory, although his mechanical aid may be comparatively limited, will be more successful than he who adopts an incorrect theory and yet has the best mechanical assistance at his command.

If we were to accept the statement of each inventor, almost every case of hip disease would be easily cured by the use of the instrument which he has devised. While it is doubtless true that certain cases of hip disease have been cured by each of the various forms of apparatus, it is equally true that a larger proportion of cases would be cured if a proper and wise choice were made in the selection of the most suitable apparatus at the commencement of the disease. Yet, in certain cases, although the strictest attention and most skillful treatment be given, the disease will continue until caries and suppuration occur; this is especially the case where there is a serious constitutional taint.

Surgeons are practically unanimous in their opinion of the necessity of securing extension of the limb in this disease, thus separating the joint surfaces and preventing friction and pressure. The means which are employed to secure this desired end vary according to the instrument employed.

It is a question which admits of doubt whether it is possible to produce extension and allow motion of the joint without at the same time having friction of the surfaces of the joint. In the inflamed condition in which the joint usually is in this disease, it seems certain that with motion, friction must necessarily occur, and with it a very serious obstacle to recovery. If this be so, not until we can secure absolute and complete rest to the joint can the process of repair proceed; but, on the contrary, there will be rapid and total destruction of the joint surfaces.

Dr. H. G. Davis claims "that motion in the joint at the same time that extension is made is an indispensable part of the treatment."

Dr. Lewis A. Sayre says: "To obtain extension in such a manner as to admit motion become the problems to be solved by surgical ingenuity." Again he says: "Motion is as essential in retaining a healthy condition of the structures about a joint as light is essential in retaining a healthy condition of the eye; for the ligaments about a joint will become fibro-cartilaginous or even osseous if motion is denied them, particularly if chronic inflammation is going on within the joint."

Dr. Chas. F. Taylor says: "Motion in the hip-joint without pressure is not only not injurious, but it is highly beneficial."

Dr. Hutchison, in his work on Orthopedic Surgery, observes: "It is difficult to understand why motion should be desirable in the treatment of inflammation of the hip-joint, when we consider it important to secure immobility in inflammation of all other joints. I have never seen true anchylosis when the joint has been immovably fixed until the inflammation has subsided, except in cases of extensive destruction of the joint structures, in which case a cure by anchylosis is the thing to be desired. Immobility of an inflamed joint, absolute and complete, is a primary and essential condition to its local treatment."

Professor Veruenil, in a paper read before La Societé de Chirurgie de Paris, says: "I affirm that there does not exist a single fact which shows conclusively that fixation however long continued has ever led to anchylosis. Impaired movement is in all cases due to the disease and not to fixation."

Mr. Hugh Owen Thomas, of Liverpool, repudiates all methods of treatment which profess to cure an inflamed joint which at the same time permit the movements of the joint. He says: "Stiff joints are not the result of too long confinement in an immovable position, but are caused by an inefficient and interrupted control of the diseased articulation, and by permitting its use too soon."

When manipulating the diseased joint it should be done with the greatest care to avoid the possibility of starting afresh an inflammation which is already subsiding. Cases in which even a trace of inflammation of the joint remains, if passive motion is resorted to, will invariably aggravate the disease.

The various mechanical appliances for the treatment of hip-joint disease may be divided into two classes:

1st. Those which are supposed to relieve pressure and at the same time to permit motion within the joint.

2d. Those that are intended to produce fixation of the joint, and thus prevent movement.

To the first class belongs the apparatus first devised by Dr. Henry G. Davis, who made the first practical application of the idea of counter-extension with locomotion. This apparatus, which has been modified and improved by Sayre, Taylor, Washburn, and Vedder, is the one with which every surgeon is familiar.

Those appliances which are intended to produce extension while the patient is permitted to walk are so constructed as to support the weight of the body on the ramus and tuberosity of the ischium, while extension is made along the length of the limb.

There is either the short thigh splint or the long splint, which runs the entire length of the limb. The bar which reaches from the pelvis to the bottom of the shoe is hollow, and the bar running inside of it is furnished with a rack by which a key extension is made. There is, in addition, an abduction screw and also an eversion screw, by which adduction and inversion may be overcome. These appliances, in the hands of their respective inventors, and with many others, have undoubtedly been of great service in the treatment of hip-joint disease, in producing extension of the limb and permanently extending the morbidly contracted muscles, together with securing a normal position of the extremity; the patient, in addition, experiences the beneficial results from exercising in the open air.

Dr. Hutchison, in commenting on this class of instruments, says, "When the patient walks the whole pelvis swings, and there is no motion at the hip-joint." This is secured in spite of the surgeon who tries to prevent it.

Barwell says, "The right idea, and that most likely to produce good results, is the American, viz., to get the patient moving about as soon as possible, giving patients greater facilities for obtaining fresh air."

Mr. Hugh Owen Thomas, in referring to this plan of treatment, rather sarcastically refers to it as the "extension movement and subsequent excision treatment." He again says: "I have seen several instances in which his (Sayre's) apparatuses were skillfully applied, and in not one of these cases was the disease arrested or even benefited;" and with some show of feeling, he says: "The best commentary upon this method is the remarkable frequency with which its principal advocate has had to perform excision of the hip-joint.

Barwell says that after the patient stands on the foot a short time a large portion of the weight falls, not on the perineal band, but on the hip-joint.

To the second class of mechanical appliances belong those that are intended to produce fixation of the joint, and thus prevent movement, as those designed by Thomas, of Liverpool, Dr. J. C. Hutchison, Bauer, Hamilton, Barwell, and Andrews.

A plan of treatment advised by Hugh Owen Thomas has for many years been known throughout Great Britain and some other parts of Europe, where it has been much employed. It consists of a bar of iron passing from the angle of the scapula to mid-calf of the diseased side, and is bent where necessary to make it fit as accurately as possible the curve of the loin, buttock, and back of the limb. It terminates above and below in iron bands which nearly encircle the chest and calf, and fastened more securely to the thigh by another band of iron just below the hip-joint. This is padded, supplied by shoulder straps, and fastened to the patient. In addition to this, a high shoe on the sound foot, together with axillary crutches. The object of this apparatus is to fix not only the hip, but the joints immediately above and below this joint, and acts as a fixation splint. He claims for this apparatus that it establishes a perfect, uninterrupted, and prolonged rest, which relieves the patient from pain and enables the case to steadily progress to a cure. He considers the weight of the lower extremity is equal to reducing any angular deformity of the hip-joint not resulting from true anchylosis. He also confidently predicts that, if adopted, this method will reclaim this class of cases from excision and amputation. Permanent stiffness is seldom met with, and cases previously untreated or only imperfectly fixed are found under this method to lose the stiffness they had acquired ; although he admits that some cases of great severity, and those undertaken late, occasionally result in anchylosis, a condition which it is desirable should be obtained in these aggravated cases.

Barwell, referring to his experience with this splint, says : "I have had many successful results from its use, but chiefly in early cases or from very docile patients." It is apt to gall the patient in a recumbent position, even though a feather bed be used ; the upright bar interferes with the use of the bed-pan. The splint, when applied to girls, interferes somewhat with micturition, soreness and even excoriation of the thighs resulting, and with it cleanliness is scarcely possible. With the use of this splint patients can exercise in the open air. It is difficult to secure a proper fit with the instrument, and children are apt to disengage themselves from it, so that they are even able to sit down with it on.

The late distinguished surgeon, Dr. J. C. Hutchison, of this city, introduced a plan of treatment which he considered more simple, agreeable and effective, and which he designated the "physiological method" of treating hip-joint disease. This consisted in attaching to the sole of the shoe of the sound limb a steel plate ; this is fastened by upright rods, two and one-half to three inches in length, so as to raise the foot from the ground. This elevated shoe, together with a pair of crutches, constitute the apparatus used. As the patient stands upon the high shoe, assisted by the crutches, it allows the diseased leg to remain suspended. He claimed "extension is made by the weight of the suspended limb," which being calculated to be one-fifth the weight of the body, is greater than the weight usually applied to accomplish extension. By this method "the weight of the body is also removed from the diseased joint, and the patient can enjoy all the benefits of out-door exercise. Immobility is secured by reflex contraction of the periarticular muscles, aided by intracapsular effusion and the voluntary effort to keep the joint at rest, on account of the pain which motion produces." He recommends its use in all stages of the disease, if the patient is old enough and strong enough to use crutches. The plan of treatment is exceedingly simple, and, if effective, should be adopted.

Dr. Hutchison, in his work, mentions a number of cases successfully treated by this method. It is the plan of treatment which has been adopted for some years past at the Brooklyn Orthopedic Infirmary. In many cases I have seen excellent results follow this method of treatment, but in a certain number of cases it has been necessary to apply the weight and pulley at night to overcome the contraction of the muscles on the anterior portion of the thigh and to separate the articular surfaces of the joint. "In the severer forms of the disease we must not only secure the joint against pressure, but also by some means other than muscular contractions, against motion."

Bauer's apparatus affords extension in a vertical line, and completely immobilizes the joint. It uses the foot for extension and the greater ischii for counter-extension, and the rack and pinion for a moving power. Andrews' apparatus is very similar to Bauer's.

Hamilton's wire gauze splint and Hilton's leather splint are moulded to the outside or the back of the pelvis and thigh. It secures immobility of the joint, together with exercise in the open air.

Mr. Barwell, of London, has designed a splint which consists of an outside wooden splint, perineal band, pulleys, and pelvic band, with an arrangement for elastic extension.

In reference to the foregoing plans of treatment, I believe that very serious objections can reasonably be urged against them, as not satisfactorily fulfilling all the requirements of successful treatment of this disease.

The plan of treatment which has given the most satisfactory results both to myself and my patients is the plan suggested by Prof. John A. Wyeth, of New York, which is essentially a "combination method," as he terms it. It is a combination of Sayre's long splint together with the crutches and high shoe, as suggested by Dr. J. C. Hutchison.

By this method of treatment we are enabled to allow the patient to take open-air exercise while the limb is held suspended, practically inmovable and thoroughly extended. In case of falling, the splint thoroughly protects the joint from injury, and at night the splint prevents spasmodic contraction of the muscles about the joint, and at the same time relieves the patient from the nocturnal pains and injury to the joint through the spasmodic muscular twitching.

I believe it fulfills all the indications of treatment as nearly as any plan can possibly do it.

Whatever plan of mechanical treatment we may adopt in this disease, it is absolutely necessary that we give the closest attention to the case. To see that the apparatus is properly adjusted, that pressure does not exist within the joint, that immobility of the joint is complete, and if these two conditions are properly attended to, it is impossible for friction to develop.

No favorable termination will occur without understanding the correct theory and seeing that it is put properly into practice.

DISCUSSION.

Dr. Rand.—The question as to rest or motion in the treatment of hip-joint disease is one that must be decided by the character of the disease and the symptoms present in each individual case. If in the term hip-joint disease we include those cases in which only the synovial membrane or the ligaments are as yet involved, and many surgeons seem so to use it, then we certainly meet with cases in which complete rest is required, and fixation of the joint, with or without extension as is indicated by the symptoms present, yields the best results. Where the bone itself, be it either the head of the femur or the acetabulum, is involved, and where, as I believe is generally the case, extension gives comfort to the patient, extension should always be employed, but it should be continuous. In the early stages of acute ostitis involving or tending to involve a joint, I believe that rest is of the greatest importance, especially so where the hip-joint is the one in question. When, however, the more acute symptoms have subsided, when there is no evidence of suppuration, and when, with extension, motion can be made without giving the patient pain, then I think motion with extension by means of a suitable splint gives the best results.

In regard to the so-called physiological method, I have learned to use it only as an adjuvant to other treatment. Before Prof. Wyeth's article, to which the doctor has referred, first appeared, I had resorted to the high shoe and crutches in conjunction with an extension splint. In adults, and in children who can use crutches safely, they render locomotion more comfortable in many cases, and permit more complete and equable extension.

In regard to separating the joint surfaces by extension, it has been demonstrated to be impossible to do so by any justifiable means, unless the disease has advanced to such an extent as to destroy more or less of the joint. The object of extension should be simply to overcome and prevent muscular spasm, and thus prevent the diseased surfaces from being crowded together by muscular action, or the weight of the body during locomotion.

Dr. Thallon.—The writer of the paper alluded to the impossibility or impracticability of applying the high-shoe method of treatment in very young children, and in so far as that goes I do not think it can be used in patients under five.

A point that ought to be emphasized is the different diseases which are ordinarily grouped under the head of hip-joint disease. It seems to me the important question in the treatment of hip-joint disease is to determine whether the disease is tubercular or non-tubercular. In the non-tubercular disease, which is the less frequent and much the less serious, the ordinary principles of rest and immobility and moderate extension will give the same beneficial results in this as they do in any other similar joint or peri-articular affection. Many of the tubercular cases, however, will go on from bad to worse, whatever is done for them. It is in these cases that it is of pre-eminent necessity to give all the hygienic benefit from out-of-door life which we can, conjoined with other constitutional measures; and it is just there that the method of Thomas, and its modifications by Hutchison and Wyeth, come in. I do not believe that the simple method of letting the diseased limb swing, as practiced by Hutchison, is of itself sufficient. I agree with Dr. Richardson that it is necessary in addition to have some method of immobilizing the limb, either by a modification of Sayre's apparatus, or as I saw in England very well done by the original Thomas' apparatus. I agree with the Doctor that it is of cardinal importance to make the diagnosis early, and especially with reference to the etiology of the complaint.

Dr. Rockwell.—The points I had in mind have been covered by the previous speakers. I was rather gratified at the conclusion arrived at by the author of the paper, inasmuch as it coincides exactly with my own experience in St. John's Hospital, where we have a large number of children who are received in the advanced stage of hip-joint trouble, where mechanical treatment is not so well calculated to give permanent benefit as in the earlier periods. At the same time I question, in these cases, the benefit of the physiological method. I got, as we all do, in cases where the early treatment had been neglected, a very prompt improvement by the use of the high shoe, combined with extension at night; but I soon found that the mere swinging of the foot was not sufficient to permanently relieve the symptoms, and I then adopted Wyeth's treatment, the one which appeals to my judgment as the best we can have for those children able to go about on crutches. Most of my own cases have been those that could do so, and in that particular hospital this plan of treatment has been adopted as a routine method, except that as soon as the symptoms moderate I do away with the splint at night, substituting the weight and pulley, and by this plan have obtained the best results. But all treatment of hip disease in our cities, except in institutions properly provided for such treatment, is more or less unsatisfactory, because the number of places to which poor patients can go and get relief is so great that, if the disease presents itself (as in ordinary cases it does) in exacerbations and paroxysms, the patient very soon becomes tired of any given plan of treatment and goes to some other institution; so that no one case, I think it is fair to assume as a rule, is observed sufficiently long to allow one's experience of the treatment to be a very satisfactory one. A few of my own cases I have followed out to the end, and in them the patients ultimately did well, having recovered with more or less useful joints.

As to the time when the attempt to relieve by mechanical appliances should cease, I think that is governed by a careful examination of the urine in a great majority of cases. I think all of us lose cases by allowing them to slip past the point where operative interference would be of use, by not paying proper attention to the condition of the kidneys, and to the fact that in a large number of tubercular cases an amyloid condition of the liver and kidneys is liable to supervene, especially in children. The appearance of this disease should warn us that mechanical treatment has reached its limit and that operative interference should be instituted.

In regard to the form of mechanical treatment to be used, I should be in accord with Dr. Richardson. If you find you can leave off the splint after the nocturnal symptoms abate, you can use the weight and pulley.

Dr. RICHARDSON.—I find that either method of treatment answers the purpose, either using Sayre's long splint at night, or applying the weight and pulley; in other words, preventing that mechanical pressure of the head of the femur against the acetabulum which seems to produce the nocturnal pains and make the child suffer so intensely.

I recently had a case under treatment, in which I applied the weight and pulley at night, while I allowed her to get up and go around on crutches during the day, with the use of Sayre's long splint in addition; and at night if the weight was raised the child would at once cry out with pain and wake up, showing that the weight and pulley produced sufficient extension to relieve the pressure and allow the child to sleep quietly, showing the value of extension in that particular class of cases. That was in the second stage, where we are apt to have very severe pain. In the third stage, after rupture of the capsular ligament, the pain is slight.

Dr. ROCKWELL.—In your experience at the Ortheopedic Hospital have you made any observations on the effect upon the disease in its earlier stages, of drilling or puncturing the joint where effusion is present?

Dr. RICHARDSON.—I have not.

Dr. ROCKWELL.—It seems to me to be one of the objections to the Thomas' apparatus, which has been alluded to, that it confines the respiratory organs and abdominal viscera by fixed pads, and is *a priori* calculated to deteriorate the general condition of the patient to whom it is applied.

Dr. Richardson.—Did Dr. Thallon say that he thought the tubercular cases more numerous than purely traumatic cases of hip-joint disease?

Dr. Thallon.—I think, taking all the cases of true hip-joint disease, that the tubercular ones preponderate.

Dr. Richardson.—I think that is the opinion of many surgeons, and yet there are some who have had large clinical experience who find it otherwise. Out of 399 cases reported by Sayre, 293 were due to traumatism, while only 106 were so-called tubercular cases. Out of those 399 cases there were 307 which were in a previously healthy condition, while in 92 the health was poor or previously unknown. In that number of cases he could pretty accurately judge as to whether the cases were largely traumatic or tubercular, of course taking into consideration also the condition of health of the patients and the family history.

Dr. Thallon.—The observations of Sayre, on most of his cases which have been cited here, were made ten or twenty years ago. It is only within the past few years that most of our knowledge of the nature of tubercular disease has been gained, and the whole tendency of opinion is to confirm the view that what you might call the inveterate cases of hip-joint disease are in the majority of instances tubercular. I do not think it correct to divide cases (as Sayre does) into traumatic and tubercular. The true point of importance, both as to etiology and treatment, is to determine is the disease tubercular or non-tubercular; in both classes traumatism may be the efficient exciting cause.

Dr. Richardson.—I refer to his last edition, which was published three years ago, and there has been no revision of the statistics in that, and it seemed to be in accord with my own experience in the Orthopædic Infirmary, and yet, pathologically, I know Dr. Thallon is correct.

Wm. M. Thallon, Secretary.

THE BROOKLYN MEDICAL JOURNAL.

EDITORIAL.

LEWIS S. PILCHER, M.D.

The address before the alumni of the Medical Department of the University of Michigan was delivered, June 27th, by Lewis S. Pilcher, M.D., of Brooklyn. Dr. Pilcher was a member of the medical class of 1866.

The title of the address is "Odium Medicum," and upon this subject Dr. Pilcher says:

"How little is the spirit of professional enthusiasm which animates the true physician appreciated or even understood by the people among whom he works. We hear much of the *odium medicum;* the personal difficulties, jealousies, and rivalries of medical men are exaggerated and commented upon freely; the amiable and sometimes transparent attempts upon the part of ambitious men to secure notoriety and practice are never underestimated; the more striking and positive achievements of particular men are fully acknowledged, and usually greatly distorted and exaggerated by partial friends; but the undercurrent of self-denying enthusiasm, upon which all these men are being equally swept along in their work, is rarely thought of, is doubtless often not even appreciated by the men themselves. But it is this alone which makes their work tolerable. How often do laymen, when they stop to consider even the most ordinary duties of the physician, exclaim in wonder that such duties can be accepted by any man. The tedious waiting by the obstetric bed, and the duties which the culmination of the parturient agony devolve upon the accoucheur; the personal services of the most repulsive character which the surgeon is continually being called upon to render; the often ingratitude of those for whom the most has been done and borne; the responsibility of acts and advice upon which the issues of life depend; the wear and tear of mind and body; these are the things, the enduring of which it may well seem strange that refined and sensitive minds should deliberately undertake. If the spirit of trade alone animated those pursuing such a calling, what grovelling and menial tendencies of mind, what callousness of heart, would it argue in them.

"But it is not so. The controlling, dominating spirit which sustains a physician in the most trying and in the most undesirable duties of his profession, whether he stops to recognize it or not, is a divinely sent enthusiasm of labor for the relief of men. Nearly all human beings have this feeling in some degree; he who is devoid of it is a moral monster; but in the physician it is cultivated to its highest degree. It is that which sustains him in all his work, and that which is his only solace in many hours of disappointment and misrepresentation."

Touching and well-deserved tributes are paid to the memories of Professors Agnew, Cheever, Gunn, Palmer, and Dunster. The address throughout is what would have been expected from the pen of Dr. Pilcher—a production erudite, classical, and finished in every particular. That its worth is recognized is shown by the fact that the *Ann Arbor Physician and Surgeon*, from which we have taken these extracts, has published it in full in its August number.

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A. N. BELL, M. D. AND "THE SANITARIAN."

It is a matter of so common observation as to be the rule rather than the exception, that medical discoveries made on the other side of the Atlantic attract attention and obtain a prominent place in the journals, while those made on this side are soon forgotten, if indeed their very existence is known to any outside the immediate circle of their discoverers.

It is stated, in a recent number of a medical journal, that M. Bouchard, who claimed in 1884 that the urine of cholera patients contained the specific virus of the disease, now, in a communication to the Académie des Sciences, announces that the urine in the "maladie pyrocyanique," filtered and injected into animals, produces some of the symptoms of the original disease, and renders the animals refractory to subsequent inoculations of pure virus.

In August, 1873, Dr. A. N. Bell, of Brooklyn, the editor of the *Sanitarian*, summed up in that journal the conclusions to which he had come as to the origin, propagation, and prevention of cholera. He said:

"1. Cholera may be produced by the direct introduction of the poison into the blood.

"2. *All of the evacuations of persons affected with cholera are dangerous* and capable of communicating the disease; that this dangerous property of the evacuations is not only passed by the evacuations from the bowels, but, at least equally, by *the vomit and the urine.*

"3. The infecting power of the discharges is in proportion to their freshness.

"4. When the discharges have undergone decomposition—to which they are exceedingly prone—or are allowed to dry on the clothing, to remain in the apartment, or are thrown out without disinfection, the disease is spread with more facility; but the symptoms are less distinct, being complicated with those of poisoning by the accompanying putrid materials.

"5. After the introduction of cholera into the animal system, *two or three days* elapse before the characteristic symptoms are produced.

"6. Cholera is distributed and diffused by the *neglected evacuations of persons affected by it;* by these discharges becoming mixed with the drinking water in rivers and wells; by cholera-soiled clothing, ships, and other vehicles of travel related to human intercourse, and by *localizing conditions,* which usually account for the apparently eratic course of cholera."

Thus the discovery of M. Bouchard in 1884, that the urine of cholera patients contained the specific virus of cholera, was practically announced by Dr. Bell eleven years before. And, indeed, in this quotation which we have made from the *Sanitarian*, will be found many statements which at the time they were made were not generally accepted, but which have been since confirmed by the experiments and observations of investigators in almost every country of the world.

It is also interesting to note that the subject of tuberculosis in milch cows, which is now attracting so much attention abroad, and is being discussed by foreign scientists almost as if they had but recently learned that human beings were in danger from this disease in milk and meat, was thoroughly discussed and the danger distinctly pointed out by Dr. Bell in the *Sanitarian*, in August, 1877. Dr. Bell even took the trouble to examine post-mortem the cows that were brought to the offal dock. Of eleven examined, ten were found affected with tuberculosis. It would be well for sanitarians generally, before announcing any new discovery in sanitary science, to consult the volumes of the *Sanitarian*, and we venture to predict as a result that fewer discoveries would be announced.

THE TELEPHONE SERVICE.

The editorial entitled "Prompt Telephone Service," which appeared in the August number of the JOURNAL, has excited a good deal of interest among the medical profession of Brooklyn, and as a result we have received several communications from physicians to the effect that we were altogether "too easy" on the telephone company and its employees. We had experienced a great deal of annoyance in the use of the telephone, but had no conception of the extent of dissatisfaction until from these communications, and from inquiries since made, we have ascertained that this dissatisfaction is well nigh universal. Although we have diligently searched, we have yet to find one physician who thinks the service is what it ought to be, and what it might be with proper attention on the part of the company.

At a recent consultation of five physicians, each of those present denounced the service in emphatic terms. One prominent physician of the city informed the company that he had had so much trouble that, unless the instrument was put in proper order within five days, he would have it removed, and announce to his patients, through the press, the reasons for its discontinuance. The causes of complaint are various. Frequently the bell must be rung repeatedly before there is any response from "Central;" then, when the connection is made, it is with the wrong number, this being often due to the fact that the operator does not repeat the number asked for. A connection being made with the wrong number, it is frequently impossible to "get Central" again, though the bell is rung for minutes at a time. This annoyance of calling up the wrong person is very great. We had occasion once to inquire about a patient at one o'clock, A.M., over the telephone; when the connection was made, an unknown voice answered; and when its owner ascertained that he had been wantonly and ruthlessly called out of a warm bed in the middle of winter, the amount of "small and early English," as one of our distinguished profession expresses it, which he emitted caused us to hang up the receiver instanter.

The fact is that the telephone has ceased to be a luxury and has become a necessity, especially in the intercourse between physician and patient, and for the amount annually paid by each subscriber, prompt, thorough, and efficient service should be guaranteed and maintained. So important is it that it may well be a subject for united action on the part of the profession, and for the formation of committees from the different societies to bring the matter officially to the notice of the telephone company.

PROGRESS IN MEDICINE.

PATHOLOGY.

BY JOSHUA M. VAN COTT, JR., M.D.,

Lecturer on Histology and Pathological Anatomy, and Pathologist Long Island College Hospital.

THE MICRO-ORGANISMS OF SYPHILIS.

Dr. Smirnoff, of Kazan (London Lancet, May 12, 1888,), examines one hundred cases of syphilis with reference to micro-organisms found in secretions of syphilitic sores and papules, and also in indurated syphilides with the following results and conclusions:

Preparations stained by methods of Lustgarten, Doutrelepont, Schütz, de Giacomi and Gram.

1. In Chancres and papules: Microbes by no means constantly present, prevailing forms those met with in healthy tissues.

2. Bacilli and cocci present in normal secretions of genital organs as frequently as in syphilitic secretions.

3. Micro-organisms not detected in syphilitic secretions after local application of calomel.

4. Examination of "indurated syphilitic lesions" revealed microbes to be rarely present. Soft and moist syphilitic tissues contained more germs than the dry and hard.

Hard "syphilitic products" contained so many morphologically different germs, as to preclude the possibility of pointing to any one germ as characteristic.

Dr. Smirnoff practically denies Lustgarten's Bacillus Syphilitica.

LARDACEOUS DEGENERATION OF STOMACH.

Edinger (London Lancet, April 28, 1888,) states the lesion to be frequent, and makes the following pathological findings in these cases:

The vessel walls and muscularis are attacked. There is hyperplasia of the mucosa. Epithelium of gastric glands not degenerated. Ulcer in smaller curvature in one case. "Interstitial changes in kidneys in another case. Testing of gastric juices in some of the cases during life revealed absence of hydrochloric acid, with free secretions of pepsine. Chief chemical defects, proteids not peptonized, development of intense gastric fermentations.

THE CLASSIFICATION OF NEOPLASMS.

W. Roger Williams, F.R.C.S. (London Lancet, April, 1888), in a very interesting article, suggests the following nomenclature for neoplasms of all varieties. He prefaces his remarks with a general survey of the behavior of cells under normal circumstances. He states that normal cells might develop indefinitely but for the action of some inhibitory or restraining power. The removal of this inhibitory power results in the production, by hyperplasia of normal cells whose own inherent activities are thus liberated, of a neoplasm whose type will always be that type of the tissue in which the tumor originates. "This is the essential idea of a neoplasm which in ultimate analysis may be regarded as the product of an abortive attempt of certain cells to reproduce a new individual by agamogenesis."

He then, following the nomenclature of His, who distinguishes only two germinal layers in the embryo, the archiblast and parablast, divides his tumors into two classes: *a*, those originating in and resembling tissues formed from the archiblast; and *b*, those originating in and resembling tissues formed from the parablast.

According to His, the archiblast originates all histological elements excepting connective tissue and blood vessels, which originate in the parablast.

This makes the classification of Williams comparatively simple.

- *A.* Archiblastic Neoplasms.
  - 1. Lowly organized.
    - Epithelioma,
      - Squamous,
      - Cylindrical,
      - Glandular.
      - (Ordinary carcinoma.)
  - 2. Highly organized.
    - Papilloma,
    - Adenoma,
    - Cystoma (neoplastic).
- *B.* Parablastic Neoplasms.
  - 1. Lowly organized.
    - Sarcoma,
      - Round-celled,
      - Spindle-celled,
      - Myeloid.
    - Myxoma.
  - 2. Highly organized.
    - Fibroma,
    - Lipoma,
    - Chondroma,
    - Osteoma.

Metastasis and growth of migrated cells are the result of defective restraining action throughout the body.

Malignancy depends upon the degree of development of cells. The less highly developed the cell, the greater its energy in the production of neoplastic tissue, and hence the greater its malignancy. The author cannot admit the probability of the theory that neoplasms are the outcome of general blood disease dependent upon tuberculosis or syphilis. With Dr. Morgan, he says: "From the first a tumor is a living, self-dependent formation, capable of continual growth by virtue of its own power of using the nutritive materials supplied to it."

HÆMOGLOBINURIA IN RHEUMATISM.

The Lancet observes (March 13, 1888,): "If the recorded and unrecorded cases of hæmoglobinuria occurring in apparently genuine rheumatism were all numbered, it would have to be admitted that the sum would be considerable, although the occurrence is usually regarded as exceptional. Recent literature furnishes many examples of rheumatic hæmoglobinuria, frequently in association with erythema of the skin, which occasionally present purpuric and vesiculate characters either singly or combined."

IS LEUCOCYTHÆMIA CANCER OF THE BLOOD?

M. Bard (Lyon Médical, No. 7, cit. Lancet, March 3, 1888, p. 436,) proposes this ingenious hypothesis based on the view that the blood is just as much a tissue as any other tissue. In his article Bard regards the disease to be a new growth, and remarks that if there is not here a tumor in the original sense of the word, it is because the new tissue obeys a pathological law, and preserves the evolutionary attributes essential to its tissue of origin—the blood.

HISTOLOGY OF CANCER AFTER INCUBATION.

In a joint note by Messrs. Ballance and Shattock (London Lancet, 1888,) bearing the above title, read by the former of the two gentlemen before the Pathological Society of London, some interesting points are brought out regarding the morphological appearance of cancer tissue after incubation imbedded in a solid medium. In essence, the cancer material presented prominently in cell nuclei and nucleoli, also in the tissue generally, granules of a spheroidal, oval, or comma shape, which stained equally well with hæmotoxylon or fuchsin. Normal histological tissues, under similar conditions of treatment, did not contain these granules, "slowly refused to stain, and resembled in section the changes seen in infarction." These nuclear particles they thought might be the source of infective irritation, and would satisfactorily explain axillary involvement.

A NEW STAIN FOR TUBERCLE BACILLI.

Prof. Lubimoff's "Borofuchsin" (London Lancet, cit. by The Microscope, June, 1888, p. 185,) distingushes Bacillus Tuberculosis from all other bacilli in sputum or tissue, which by this method remain colorless.

℞	Fuchsin, - - - -	gr. viij.
	Acid Boric, - - - -	gr. viij.
	Alcohol absolute, - - -	ʒ iij. ¾
	Aqua Distill., - - -	ʒ v.

M. Sig.—Spread sputum on cover glass and heat in contact with the borofuchsin for one or two minutes. Wash in alcohol, and immerse in a saturated solution of methylene blue for half a minute. Wash again in distilled water, dry, and examine in cedar oil or Canada balsam.

NEW METHOD OF STAINING SECTIONS OF THE CENTRAL NERVOUS SYSTEM.

Pal, of Vienna, (Brit. Med. Jour., March, 1888,) claims for the following method originated by him the advantages of greater distinctness in defining elements, separate staining of nerve cells and nuclei, greater speed, and abolishment of necessity for treatment of sections with cupric acetat. solution.

Portions of cord or brain are hardened in Müller's fluid in the ordinary way. Make a three-quarter per cent. solution in water of hæmotoxylon, with the aid of heat. Add alcohol after cooling. This solution does not keep long, and must not be exposed to sunlight.

Just before using the hæmotoxylon solution add to it a solution of lithium carbonate in proportion of three or four drops of the latter to ten cc. of the former. This causes the solution to assume a violet red hue.

Paraffin secretions cut in absolute alcohol are stained in the above for five or six hours, and then washed in water until all color ceases to come away.

The sections are next to be "differentiated" by immersion for fifteen or twenty seconds in a quarter per cent. solution potass. permanganate, and then for a short time in Pal's solution, until the white and gray matters are plainly defined—generally in two or three minutes. This process must be repeated if the white and gray matters are indistinct, or black specks are seen on the sections.

Pal's solution :

℞	Acid Oxalic, - - -		part	1.
	Potassium Sulphid.,	(K_2SO_3)	"	1.
	Aqua Distillat., - - -		"	200.
M.				

Sections are thoroughly washed in water after removal from Pal's solution, and the nuclei then stained in alum-carmine or eosine, preferably the carmine. Again wash in water, dehydrate in absolute alcohol, clear in clove oil or creasote, mount in balsam.

In sections so treated, medullated nerve fibres stand out blue and sharply on a white background, presenting strong contrast to the red nuclei.

To bring out nerve cells prominently, place sections after "differentiating" into a slightly alkaline picro-carmine, staining the nuclei as before in alum-carmine, after washing in water.

A modification of this method, called the Pal-Exuer method (Brit. Med. Jour., March, 1888,) consists in hardening fresh brain or cord after division into small cubes, by immersion for two days in an aqueous solution of osmic acid, changing the solution at least twice.

Wash the tissues thus hardened carefully in water, and dip for about two seconds in absolute alcohol. Cut in wax mass or celloidin on the microtome direct into glycerine, wash sections thoroughly in water, "differentiate" as before, decolorize in Pal's solution, and stain after washing in water in safranin or picro-carmine. Clear and mount as before.

THE DIAGNOSIS OF CARCINOMA OF THE STOMACH.

The author (Rosenbach, Centralblatt f. Klin. Med., 1887, cit. Am. Jour. Med. Sci., Feb., 1888) is opposed to the views of Riegel regarding the diagnostic value of hydrochloric acid in determining gastric carcinoma. He has repeatedly found it in stomachs which have proved to be carcinomatous at the autopsy table.

The presence of hydrochloric acid in the gastric secretions he believes depends on the chemical nature of the food ingested and the time, after ingestion of food, of testing for the acid. Failure to detect acid five or six hours after eating may be followed by success two to four hours later.

An abundant amount of acid may be due, he believes, to the action of a normal stomach or of a pathological stomach, and in different cases different conclusions are to be drawn from the same degree of acidity.

Dilatation of the stomach from any cause may lead to hypersecretion of acid; and pyloric stenosis, the result of carcinoma, is a frequent cause of this condition.

The condition of the peptic strength he shows to be of practically no value, and suggests, as a better test of the digestive capacity of the gastic secretions, the determination of the presence of peptones. Finding peptones, the time of ingestion, and intensity of peptone reaction, will prove valuable factors in drawing conclusions, both diagnostic and therapeutic, concerning the condition of the gastric secretions. Rosenbach has rarely failed to find peptone, by the biuret process, in carcinoma, and then only towards the termination of the disease.

SOME NEWER METHODS FOR THE RECOGNITION OF FREE HYDROCHLORIC ACID IN THE GASTRIC SECRETION.

Alt (Centralblatt f. Klin. Med., 1888. Cit. Am. Jour. Med. Sci., April, 1888,) observes first, that in Riegel's clinic those substances depended upon for detection of free Hcl. in gastric juice are tropaolin, methyl violet and Congo red.

In answer to the recent serious objections raised by Gunzburg and Boaz against congo red—these experimenters stating that bluing of this congo occurs in presence of lactic acid even in 0.03 per cent. solution—Alt reports experiments by himself and Kuhn.

Comparative tests were made with phoroglucinvanilin (Günzburg's test), and trapaolin paper (Boaz's test). Control experiments made with artificial lactic acid.

With artificial solutions of lactic acid of 0.025 per cent.–0.03 per cent. strength, distinct bluing of congo paper was observed. This was not the case, however, when lactic acid was added to gastric juice free of Hcl. In this experiment the bluing did not occur until 1.02 per cent. lactic acid were in the solution. Several experiments of similar nature with gastric juice from different patients yielded the same results. So large a percentage of lactic acid never being found in gastric secretions, the objection urged to congo red could not stand.

Any reactions observed with either phoroglucinvanilin, trapaolin paper, methyl-violet, or trapaolin 00, were equally observed with congo. Alt's conclusions are that the newer tests offer no advantages over congo red. He also insists that too much reliance must not be placed in simple color tests, but that in each case the peptic strength must be tested.

MICRO-ORGANISMS OF THE MALE URETHRA AND OF NORMAL URINE.

Lustgarten and Manneberg (Vierteljahrschrift f. Dermat. und Syph., cit. Am. Jour. Med. Sci., April, 1888), by means of a sterilized platinum spoon, remove portions of secretion of mucosa of the normal urethra.

Many varieties of bacteria were found, and amongst them two of particular diagnostic importance. One was a bacillus morphologically identical with B. Tuberculosis, the other a diplococcus not to be differentiated from Neisser's gonoccus. The bearing of this discovery on examinations of urine, in cases suspected of either of the above diseases, is evident. The authors, after experimenting, recommend catherterization with a sterilized catheter.

The same authors found that the urine in three cases of acute Bright's, drawn in sterilized vessels with proper precautions, contained quantities of a streptococcus which appeared either in the form of long chains of twenty to thirty cocci or as zoöglea balls. The microbes diminished with defervescence, increasing with each exascerbation, and they incline to the belief in their ætiological relation to this disease.

REVIEWS.

Intubation of the Larynx. By F. E. Waxham, M.D., Professor of Otology and Laryngology, College of Physicians and Surgeons of Chicago, etc. Published by Charles Truax, Chicago, Ill., 1888; pp. 110.

Intubation of the larynx, a subject at once of the greatest import and interest, has been the theme of many papers and discussions before medical associations. To Dr. F. E. Waxham, of Chicago, belongs the honor of offering to the profession a small volume devoted exclusively to the history, description, and statistics of this new method of combating that most grave and fatal ailment, diphtheritic laryngitis.

Dr. Waxham's work is lucidly written, and thoroughly practical in its nature. Recognizing the dangers as well as the advantages of intubation, he has plainly and honestly dealt with both, and has given to the medical public, not a foundationless and fanciful sure-cure, but a volume of information, a history of results, and a statement of facts, so valuable that they demand the study and consideration of every conscientious and active member of the profession.

Of all the emergencies which the general practitioner is called upon to treat, probably none are more trying to the physician, the patient, and his friends than those due to impending strangulation from membranous laryngitis. Where medical measures have failed to afford relief, tracheotomy has hitherto been the last resort, an operation that is so frequently and strenuously opposed by parents of the patient that fatal delay has seriously affected its record of recoveries. Until a few years ago tracheotomy occupied alone its field of usefulness; now, thanks to the indomitable perseverance of two or three American physicians, a substitute has been brought to general notice that bids fair, when perfected, to supplant the operation of making an external opening into the trachea, and which even now in its embryonic stage is its formidable rival. The operation proposed consists of inserting within the larynx a short metal cylinder having at its upper extremity a flange which, by resting upon the ventricular bands or cordes vocales, prevents the descent of the tube into the trachea.

Let us note what claims are made by the author, comparing it with its alternative, tracheotomy. First, intubation is a rapid operation; Waxham says ten seconds only are necessary after placing the gag in position; one less skilled would require nearly a minute to properly insert the tube. Secondly, no anæsthetic is needed, therefore the time requisite for narcotizing the patient is all saved, and at a time when minutes, even seconds, are precious. Thirdly, as the operation is less formidable and terrifying than tracheotomy, so parents and friends will the earlier consent to the procedure. Fourthly, the after-treatment is simple, purely medicinal, there is no shock from incision, no granulating wound to heal. Finally, a comparison of statistics shows the percentage of recoveries following intubation of 500 cases to be 26.4 per cent: of 10,000 cases of tracheotomy, 30 per cent. But of 52 cases of intubation of patients under three years of age, 25 per cent. of cures was effected; while for tracheotomy, with the same limitations of age, but 20 per cent. of recoveries are reported.

Attending this operation there are drawbacks, and they are not insignificant, nor are they slighted by the author. The greatest objection, he says, is the difficulty experienced by the patient in swallowing liquids. The presence of the foreign body, the tube, interferes with perfect approximation of the rising larynx and the falling epiglottis, and, as a consequence, the fluid enters the trachea, causing such violent coughing that frequently the tube is expelled or at least its position changed. To prevent such an accident, Waxham has suggested a metal cover attached to the upper opening of the tube by a hinge-joint and kept open by a delicate spring; the cover, it is intended, closes the lumen of the tube by the downward pressure of the posterior surface of the epiglottis in its descent during deglutition.

Another danger to guard against is the crowding down in the trachea of false membrane in introducing the tube. Should this occur, the tube must be withdrawn, and the expulsion of the membrane effected either by the effort of coughing or by the use of the long trachea forceps.

Also, the anterior inferior extremity of the tube, by rubbing and pressing against the tracheal wall, may rapidly cause deep erosion and ulceration of the mucous membrane. To prevent this evil, the lower end of the tube should be rounded, broad, and perfectly smooth.

Furthermore, the tube is liable to be blocked by detached pieces of membrane; this, of course, would necessitate the immediate withdrawal of the tube. Regarding the most desirable calibre for the tubes, there is at present a difference of opinion. O'Dwyer claims that the smaller the lumen, compatible with free respiration, the greater will be the expulsive power of a given amount of expired air. Sajous, on the contrary, holds that the apperture of the tube should approach as nearly as possible the diameter of the normal larynx.

Intubation of the larynx, Waxham's book clearly demonstrates, although still in its infancy, has attained unexpectedly good results, and warrants in the future close attention and careful trial. It is a comparatively painless operation, requiring but little time for actual performance or after-treatment; it is admissable in unsanitary environments; there is much less irritation of surrounding tissues and less likelihood of septicæmia than in tracheotomy; and finally, the air enters the lungs through those natural passages whose special function it is to filter, warm, and moisten it before being inspired.

Intubation should not, we think, be proposed as an antagonist to tracheotomy, but rather as a possible substitute, at least as a valuable adjuvant in fighting one of the most grievous ailments that can afflict suffering humanity.

We cordially recommend this little volume; it admirably answers a number of questions that have of late arisen in professional minds regarding the nature of the operation under discussion, and it does so in a clear and concise manner. We congratulate Dr. Waxham on the the pleasing form in which his book is published and its freedom from typographical errors. We recognize in the author an enthusiastic and conscientious worker, and trust, as his experience and future labor enable him to effect other advancements in this treatment of laryngeal stenosis, he may be induced to write a more exhaustive treatise on the subject. D.

MISCELLANEOUS.

CLINICAL LECTURE ON FRACTURE OF THE LOWER END OF THE HUMERUS.

BY J. S. WIGHT, M.D.,
Professor of Operative and Clinical Surgery at the Long Island College Hospital.

Reprint from the Medical and Surgical Reporter, May 5, 1888.

GENTLEMEN :—This boy is eight years of age. Two weeks ago he fell on his left elbow and broke the lower end of the humerus. His injured limb has been supported by a posterior splint, so that the forearm has been about midway between a right angle and complete extension. You may know that such a case is important, when I tell you that its diagnosis is uncertain, that it is difficult to treat, and that the results cannot always be known beforehand.

When such an injury occurs, and is presented for your examination and treatment, you have two standards for your guidance. First : In your general study of anatomy, you have formed and carry with you some ideal of the structure and uses of the elbow-joint. With this more or less correct ideal you compare the injured limb, and make a note of the signs. Second : You carefully examine all the landmarks of the other elbow. This is your best standard of comparison. Keep one hand on the normal elbow, and the other on the one that has been injured. At each and every point contrast and compare the injured with the normal structure. An analysis of your impressions will give you additional facts, which will aid you in your diagnosis. Then see how much the motions of the forearm on the injured side have deviated, and try to determine the causes that have impaired these motions. Has the elbow-joint been sprained? And what is of the greatest importance, we should always ask if the injured part has suffered injury or disease at some previous time. We may not mistake the results of an old injury for the effects of one that is recent. An injury to a diseased joint brings two conditions to our attention : how much of the disorder was caused by the disease ; how much of the damage was produced by the injury.

Let us begin our examination by noting the landmarks of the uninjured elbow. The head of the radius and the external condyle are formed to project equally on the outside ; one is as prominent as the other. I have very rarely seen an exception to this rule of conformation. The ulna appears to be on a line with the humerus, just as if it were the prolongation of that bone. And the curve of the radius and the expansion of the radial base cause the forearm to meet the arm at an obtuse angle. The internal condyle is prominent, as well as the olecranon process of the ulna. Mark the groove between these two processes, and keep in mind the distance of one from the other. See the way in which the olecranon moves to and fro during extension and flexion of the forearm. Remember that at the age of our patient the lateral motion of the forearm, so common in early life, has mostly disappeared. In our patient this evanescent function is absent. In fine, the motions of flexion, extension and rotation of the forearm of the injured limb are practically normal.

I have already told you that this boy had broken the lower end of his left humerus: I expect to prove this conclusion beyond the possibility of a doubt. But in the meantime let me say to you, that the changes taking place in the lower end of the humerus, as it develops, have important bearings on the causation, nature, treatment, and the results of fractures, such as we have illustrated by the case of our patient. I allude to the epiphysis and the cartilage between it and the diaphysis, In our patient ossification is going on in the end of the humerus adjacent to the radius, the external part of the ulna, and the internal condyle. And it seems to me that this change from cartilage to bone, which occurs in the ends of long bones, is sometimes a reason why a fracture happens so often in this location. In making this statement I do not underestimate the influence of other causes. But I am inclined to the opinion that this ossifying cartilage, though the change goes on very slowly, resembles provisional callus; for both are apt to yield and even break under the impact of external violence. The bearing of this ossifying structure on the nature, treatment and results of such fractures will receive our attention, when we have made our diagnosis.

Let us inspect this injured limb and see what we can find. The condyloid end of the left is greater in width than the corresponding end of the right humerus. Measurements by the calipers show that the lower end of the right humerus is about an inch and three-fourths in width, and that the lower end of the left humerus is about two inches in width, demonstrating the fact that the injured elbow, from some cause, has been made wider than the other. The forearm of the injured limb bends and falls to the inner side. The external angle usually made by the forearm and the arm at the elbow-joint is obliterated, and an internal angle is formed. The entire forearm is displaced inward nearly one-fourth of an inch. Observe this somewhat sharp prominence just above the place where we ought to find the head of the radius. You can see that the head of the radius is displaced inward, and part of the radial head of the humerus has gone along with it, leaving a rough end of broken bone under the skin and fascia.

This rough end can be seen, and can be distinctly felt. How can the upper end of the radius move inward and not take the upper end of the ulna along? And we find that the ulna has moved inward about one-fourth of an inch. But, as you see, the internal condyle has also moved inward. And if we measure, we shall find that the internal condyle and the upper end of the ulna have nearly the same relations on the injured as they have on the normal side; the apex of the internal condyle is about as far from the olecranon on one side as on the other. And we discover a deeper curve on the inner aspect of the left arm just above the elbow than in the same location on the right arm. It seems as if the more internal parts of the left humerus, near the internal condyle, had been bent inward, without giving way entirely, producing a form of incomplete fracture. The age of our patient would be in favor of such a conclusion.

Now we may consider the displacements of the fragments, for we may assume that the lower end of the humerus has been broken. The head of the radius and the radial head of the humerus are, as you can see, displaced backward somewhat further than the upper end of the ulna, the trochlea and the internal condyle. The lower articular end of the humerus is displaced inward about one-fourth of an inch. This lateral displacement is as great as the shortening of the injured humerus. It seems that the lower end of the upper fragment is displaced outward and somewhat forward about one-fourth of an inch.

The motions of the elbow-joint are impaired. The forearm can be moved to a point about twenty degrees from complete extension, and from thence nearly to a right angle with the arm. It has lost more than one-half of the function of flexion and extension. The left forearm has about thirty degrees less rotation than the right. Its lateral motion has been somewhat augmented. These motions are passive. They are made by the surgeon. The voluntary motions of this elbow-joint are very much impaired, not only on account of the mechanical obstructions, but also on account of the pain and the tenderness. In fact, the motions are not all confined to the joint. There is mobility in the continuity of the lower end of the humerus. The radial head of the humerus is broken off obliquely inward and upward, and there is a line of separation between it and the trochlea, so that the motion of the fragment is added to the motion of the elbow-joint. The simple fact is that the head of the radius has left its normal relation with the external condyle. The fracture extends obliquely upward and inward from the fragment just described, displacing inward the internal condyle, which is not completely detached from the shaft of the humerus, and yet the separation is sufficient to add some mobility to the elbow-joint.

In this place let me call your attention to the nature of some fractures that occur in the condyloid end of the humerus, and to the position of the forearm in the case of this patient. I have seen a number of cases of incomplete fracture in the ossifying cartilage of the condyloid end of the humerus. These cases have occurred in boys from six to fifteen years of age. In the case of this boy the fracture is mostly complete. The lower end of the diaphysis of the humerus is split upward and inward, and the fibres of the bone on the internal aspect above the internal condyle are partly bent. It seems as if the olecranon had acted as a wedge to penetrate to some extent the intercondyloid tissue, and aid in no small degree the displacing effects of the external violence that was applied at the time of the fall. I think that there can be no doubt of the existence of a fracture of the lower end of the humerus in this case. It is complete on the outside, and it is incomplete on the inside of the humerus.

Let me say to you that from time to time I have seen incomplete fractures, that have occurred in the ossifying cartilage of the lower end of the humerus. These fractures traverse the tissue vertically, obliquely and transversely. They are most apt to occur in boys, between the ages of six and fourteen years. The structure seems to split for a certain distance, and form a wedge-shaped opening, which is usually filled up by the material of repair. The displaced fragments, are, for the most part, irreducible. Had we the time at our disposal, I could give you the clinical history of a number of these cases coming under my observation and treatment.

Let me give you a few words in regard to the position of the forearm in the case before us. Since the ulna is attached to the inner fragment, and since that fragment is bent inward, and since the radius is attached to the outer fragment, and since that fragment is displaced backward, it follows that the entire forearm is rotated outward to some extent. This is one of the displacements of the forearm, which has followed the lower fragment of the humerus in its internal angular displacement. Let me call your attention to some points of scientific and practical importance in regard to the attitude of the forearm. The space between the ulna and radius is greatest when the forearm is in a position of mid-rotation, and the radius approaches the ulna from this position to complete pronation, as well as to complete supination. And when the forearm is flexed to a right angle with the arm, carried across the chest, and kept vertical, so that the radius is directly over the ulna, the bones of the forearm will be in the same plane, and will be at their greatest distance from each other. This plane of the forearm, as you see, meets the long axis of the arm at an acute angle that differs as to size in different patients. Now I have often given you reasons why the forearm as a rule ought to be put in this position during the treatment of fractures in the vicinity of the elbow-joint. This position tends not only to equalize the antagonism of the muscles that span the elbow-joint, but it also conduces to the reduction of the displaced fragments of bone. And if we construct a splint on the mechanical principles suggested by the conformation, the structure and the muscular apparatus of the elbow and its relations, it will accomplish two important indications : we can make a more complete reduction of the displaced fragments, and the patient will have the greatest relief from pain. I have proved these two propositions in a practical way on many occasions. More than once I have been surprised at the completeness of the reductions of the bony fragments, as well as their retention in position during the process of repair. Often patients have expressed relief from pain, when this form of splint has been applied.

This apparatus would appear to be an unnecessary refinement—and so I have been told. In reply to this, let me say, that the surgeon is morally bound to give his patient as much freedom from pain as he can. He is bound by the same kind of obligation to apply his best skill in the treatment of the case. He must reduce the fragments in so far as it can be done safely. He must put in practice those principles which will, according to his best judgment, restore and conserve the functions of the damaged structure to an extent which will be consistent with ordinary skill ; and he may go as far beyond that as he can. The ambition of the surgeon ought to lead him in the direction of the highest success. Now in my hands this splint, having two angles as above described, has accomplished good results. In fact it has answered a better purpose than any other that I have employed ; and so I recommend it.

You will see that the motions of this elbow-joint are very much impaired. And then you ask—what is the cause? Let me explain : The joint surfaces which fitted and moved in opposition before the injury, have been deformed, so that the parts have lost their adjustment, and so that the projecting points of bone on both sides of the joint meet and obstruct each other. And since the fragments have been only imperfectly reduced, the obstructions to the motions of the joint must continue to operate. But the case does not remain in this condition. The process of repair has furnished new material between and around the fragments, so that the obstructions to motion have been augmented. In fact, the process of repair works in the direction of making the fragments grow together, and does not seem to have any special purpose in restoring the motions of the joint. In addition to this, bands of adhesion, as they are called, attach one part to another so as to further impede the motions which have been impaired.

And then there is another point connected with this injury: I mean that there has been some damage done to the neuro-muscular apparatus. In a healthy joint which has not been injured there is a co-ordinate relation between the nerves and muscles concerned in the motions of that joint; and the bony levers are involved in this relation. That is, we have a triple relation of bones, muscles and nerves. Damage to either factor will derange the entire co-ordinate relation so as to interfere with the performance of function. The bony supports, as points of resistance and surfaces of motion, have been seriously damaged in this case. The nerves have been injured and irritated. The nerves send messages to the muscles, not to make them keep quiet, but to cause them to contract, and they do so without discretion. The fulcrum of the bones of the forearm is in pieces and can not normally sustain the force of the contracting muscles that span the elbow-joint. Now the muscles not only displace the fragments by traction on the bones, but they will also in time become shortened; they will become *contractured*. And then, as you now see, we have another reason why such an injury, as the one before us, impairs the functions of the part in which this triple relation of bone, nerve and muscle has been deranged.

Let me tell you another thing which sometimes leads to a difference of opinion among surgeons, and is apt to be a cause of controversy. I mean this: That these cases of injury to the elbow-joint, accompanied by fracture of the condyles of the humerus, eventuate in very different results in different cases. It is the old story, which we are all so slow to learn, which begins in the constitutional condition of our patients who are not all put together with the same physical consistency. One patient will have a trivial injury to the elbow, and be left with the functions of the parts greatly impaired. Another will have a severe injury, even involving a compound fracture of the condyles of the humerus, and have a recovery that is almost perfect. Both of these cases may be treated on the same plan and with the same degree of skill; even the one that has resulted with the greatest disability may have been treated with greater care and skill than the other. The difficulty does not exist in the treatment, but comes out of the physical condition of the patient. Hence it has occurred that one surgeon has had a series of cases of fractures of the condyles of the humerus, in which good results have supervened, and then he extols the plan of treatment that he has pursued; and perhaps he may come to the conclusion that he can always prevent disability in cases of fracture of the elbow. I need not emphasize the fact that this surgeon is mistaken. On the other hand, another surgeon may have a series of these cases of fracture, and may have had them all in the main result in more or less disability. Let him not be discouraged, for he may have treated his cases with more than ordinary skill. The results may have been due to the intrinsic difficulties of the cases, which no one can overcome. Let surgeons reason together; let no one be discouraged; let no one be unduly exalted. It is easier to criticise work than it is to perform it; and the apparent results are not always the index and the measure of the skill that has brought them about.

There is one point connected with fractures in the vicinity of joints in regard to which you may be in some doubt. This point relates to passive motion. On passive motion there are many different opinions among surgeons. One says, begin passive motion soon after a fracture occurs; another says, institute passive motion at the end of three or four weeks; and still another says, make passive motion when six or eight days have elapsed. Again, one surgeon says, make passive motion every other day; a second says, make passive motion every third or fourth day; and a third says, make passive motion about once a week. Each one of these precepts has given good as well as bad results; and this means that the methods are not so much at fault as the condition of the patient and the circumstances of the case. Your difficulty, when there is so much uncertainty, will be to know what to do in a case of fracture of the elbow, for instance.

In the light of experience, let us analyze this subject of passive motion. What is the object of passive motion? Practically, it is to prevent, as far as possible, the impairment of voluntary motion. When the fragments have grown together, it is desirable not to have a disabled joint in the vicinity of the fracture. What events are apt to occur in the vicinity of the elbow-joint, when there is a fracture of the condyles of the humerus? The inflammation, incident to the process of repair, may implicate the tendons and their sheaths, as they span the joint, and leave adhesions that may interfere with voluntary motion. Also the inflammation may agglutinate the various forms of connective tissue about the joint, so as to aid in the production of disability. The new material that is formed for the repair of the broken bone, as we have indicated, will be a potential cause of anchylosis. Now what will be the effect of passive motion on the formation of adhesions between the layers of connective tissue as well as between the tendons and their sheaths? Passive motion of proper kind and degree, in the great majority of cases, will be instrumental in preventing, or limiting the formation of such adhesions. Sound theory, as well as abundant experience, has corroborated this conclusion. Severe injury and excessive inflammation might interfere for a time with our attempts to make passive motion. In the next place, would passive motion interfere with the formation of callus? and would it cause the displacement of the fragments? In a case of incomplete fracture, or when the fragments could not be reduced, passive motion would not cause displacements. In any other case, except when there is great swelling of the soft parts, it is possible, as a rule, for the surgeon to hold the fragments in place as he makes careful passive motion. I have often verified this practice. In regard to the new material that is going to be transformed into bone: in general, the pressure produced by the passive motion will make the new ossifying material yield and cause it to be absorbed, so that the bones of the forearm can be flexed and extended more and more, thus conducing to a better result

Now, what kind of passive motion shall we make in these cases? Let it be gentle, so as to prevent adhesions between the tendons and their sheaths, and so as to keep the new ossifying material from obstructing too greatly the motions of the joint. As a rule, let passive motion begin from three to five days after the fracture has occurred, and let it be repeated every three or four days from that time till treatment is no longer required. There is no fixed time for treatment to continue; one case may need passive motion only a few weeks, and another may need it as many months. Let me illustrate: One boy, about nine years of age, broke the condyles of his left humerus, and in six or seven weeks had good union, with nearly perfect restoration of the motions of the forearm. This case was treated on the plan above described. Another boy, about fourteen years of age, broke the condyles of his right humerus, and, after ten months of the most persistent and careful treatment, had firm union of the fragments, but could flex and extend the forearm only about one-half the normal distance. The constant tendency in this case was to anchylosis. On several occasions I administered ether and broke up the adhesions, causing some absorption of the new bone, so as to augment the extent of the motion.

One of the possible sequences of passive motion must be mentioned. There may be fibrous union between the fragments of bone, leaving a new point of motion, with the joint more or less impaired. This condition may not augment the deformity to any great extent, and it will not very greatly diminish the strength of the joint, while it may increase the motions of the forearm. Now, it might be that motion of the forearm would be more desirable than resistance of the elbow-joint, so that fibrous union of the bony fragments might be more useful than anchylosis. And let me add that I have seen fibrous union take place when the case has been treated without passive motion. Also, I have seen the condyloid fragments mostly absorbed, so that the motions of the forearm have been very much greater than normal.

Furthermore, I have seen two sets of cases: one in which the forearm could not be flexed above a right angle, not only on account of the projection of the lower end of the upper fragment, but also on account of the formation of new substance in front of the elbow-joint, but the extension of the forearm has not been greatly limited in such a case. The other set of cases has exhibited a persistent tendency to flexion of the forearm even above a right angle, and has presented such obstruction to extension as has been very difficult to overcome. The difficulty in such a case appears to depend on resistance to the olecranon by new substances formed in the olecranon fossa, as well as on contracture of the flexors that span the elbow-joint.

BROOKLYN VITAL STATISTICS FOR JULY, 1888.

By J. S. YOUNG, Dep. Commissioner of Health.

Data of comparison:

Population, estimated on July 1st, 1888	793,960
Inhabited houses, about	93,000

Average birth-rate per 1,000 for ten years (returns incomplete).

In the month of July, 1888, there were 2,103 deaths, the rate of mortality being 31.78 in every 1,000 of the population.

The number of births reported was	1,117
The number of marriages reported was	412
The number of still-births reported was	135

The mortality by classes and by certain of the more important diseases was as follows:

Causes:

1. Zymotic	902
2. Constitutional	355
3. Local	681
4. Developmental	119
5. Violence	46
Measles	5
Croup	21
Diphtheria	57
Scarlet Fever	28
Typhoid Fever	4
Whooping Cough	12
Malarial Diseases	5
Diarrhœal Diseases (all ages)	712
“ “ (under 5 years)	658
Phthisis	169
Bronchitis	39
Pneumonia	59

All Respiratory Diseases	111
Bright's Diseases	28
Puerperal Diseases	9
Old Age	21
Suicide	7

Reported cases:

Diphtheria	177
Scarlet Fever	153
Measles	74
Typhoid Fever	—

During the month 4 cases of small-pox were reported, of which number 4 were confirmed as small-pox. 4 cases of small-pox were sent to hospital. No deaths from small-pox occurred in the city and 2 in the hospital.

Deaths by sex, color, and social condition were as follows:

Male	1106	Female	997
White	2051	Colored	52
Native	1681	Foreign	422
Married	396	Single	1575
Widows, Widowers, and not stated			162

Still-births (excluded from list of deaths) were as follows:

Males	70	Females	65
Total			135

Deaths in public institutions	125
Deaths in tenement houses	1097
Inquest cases	131
Homicides	—
Suicides	7

Age Periods:

Deaths under 1 year	1025
" " 5 years	296
Total deaths under 5 years	1325
" " 5 to 20	118
" " 20 to 40	243
" " 40 to 60	213
" " 60 and upwards	204

Certain foreign and American cities show the following death-rate for the month of June:

Brooklyn	31.78	Vienna	25.45
New York	33.24	Paris	19.09
Philadelphia	25.94	London	15.18
Berlin	21.25	Glasgow	20.58
Dublin			21.55

HYPODERMIC USE OF NITROGLYCERINE IN HEART FAILURE.

BY M. HOWARD FUSSELL, M.D., PHILADELPHIA.

From Medical and Surgical Reporter.

The results of the hypodermic use of two drops of a one per cent. solution of nitroglycerine, in the following cases of heart failure, were so satisfactory that it seems a matter of importance to the writer to place them on record.

CASE I.—Mrs. G., aged 63, subject to dyspnœa, palpitation and recurring œdema for several years, had a slight cerebral hæmorrhage two years ago. Examination at that time showed disease of the mitral valve. Under treatment with digitalis and strophanthus, the case progressed favorably until January, 1888. Suddenly on the night of January 2d, the patient, having passed an unusually good day on the first, was seized with urgent dyspnœa, so that she was unable to lie down, and she became so sick that I was summoned about 3 o'clock in the morning. I found the patient unconscious, both her lungs full of bubbling râles, her pulse ninety and weak, but remarkably regular considering the patient's general condition. Her breathing was stertorous, and could be heard in the next room.

The patient having previously had cerebral hæmorrhage, I at first thought this attack was a recurrence of the same trouble; but the fact that there was no recognizable paralysis caused me to doubt this diagnosis. The patient's condition was so bad, however, that I told the family she was the subject of heart failure, and in all human probability would die in a short time.

At this juncture I remembered a remark made to me by Dr. John H. Musser, of West Philadelphia, to the effect that he was certain he had in such cases saved life, at least temporarily, by hypodermic injections of amyl nitrite.

The patient had been taking nitroglycerine before the attack, so I procured the bottle, gave a hypodermic injection of two drops, and retired from the room to await the death of the patient. In just twenty minutes from the time of the injection the attendants called out that our patient was dying. I went into the room, and, instead of finding her dead, saw that she had raised herself in the chair in which she was propped, and was evidently conscious. I spoke to her and received an intelligent answer. Her pulse had become still more regular than it had been before, and her breathing less labored. I immediately repeated the injection of nitroglycerine, and in the course of an hour had the satisfaction of seeing my patient's condition so much improved that she was able to talk and could lie down without trouble, while the râles had disappeared from all parts of her chest, except the extreme bases of the lungs. In a few days the condition of the woman was quite as good as it was before the attack, and she was able to go about the house comfortably.

Case II was one of typhoid fever. The patient, a man 45 years old, had had a remarkably light attack of fever, his temperature never rising above 102°, and by the end of the second week it had reached the normal point.

On the sixteenth day of the disease the patient awoke in the morning saying he felt better than he had felt on any previous day. Notwithstanding the repeated warnings he had received not to make any undue exertion, he arose suddenly from his bed, reached under it for the commode, and immediately fell back in a faint. I was sent for, and on my coming found the patient in a deplorable condition. His pulse exceedingly irregular and weak, and so rapid that it could not be accurately counted; his face cyanosed; his hands and feet cold; his lungs full of râles. I immediately administered two drops of nitroglycerine hypodermically, and applied heat externally. In a few minutes I had the satisfaction of seeing my patient's condition begin to improve. His pulse became more regular, though still exceedingly rapid, and his breathing less labored. Stimulants were then administered, and he gradually improved for two days, when death took place from another attack of heart failure, following a persistent straining at stool.

Case III.—A man, 59 years old, an habitual drinker, and the subject of mitral disease of the heart. After retiring on the evening of May 1, he was suddenly attacked with urgent dyspnœa. He arose, was propped in a chair, and tried vainly to obtain relief from his oppression. I saw him one hour after the beginning of his attack, and found his pulse irregular, rapid and weak. His breathing was rapid, his face cyanosed, and his lungs filled with bubbling râles. He was conscious, but unable to speak connectedly. Remembering my former success with nitroglycerine, I immediately injected two drops hypodermically. This was followed in a few minutes by marked relief. In half an hour I injected one drop. At the end of three-quarters of an hour the patient's pulse was regular; he could talk easily; his breathing was almost normal. I then ordered whiskey and digitalis to be given during the night, and in the morning found him exhausted, but almost in his normal condition.

In all of the above cases death seemed imminent. In the first case the woman would certainly have died very soon had she not received prompt relief. The treatment by the hypodermic use of nitroglycerine acted so promptly that the bystanders were very much impressed, and the physician was almost as much astonished as they were.

I have treated similar cases with stimulant hypodermics of whiskey and digitalis, but sometimes death was not averted, and when it was the relief was long delayed.

One who has seen cases of heart failure treated in the usual way can have no conception of the brilliant results which may be obtained by the hypodermic use of nitroglycerine. The treatment has the great advantage that it is harmless in any event; and I believe it should always be tried, though, of course, not to the exclusion of other well-known methods of relief.

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AUTOPSY OF THE LATE EMPEROR OF GERMANY.

The report of the autopsy on the body of the late Emperor of Germany has been translated and published by the *British Medical Journal.* It is as follows:

"Schloss Friedrichskron, June 16, 1888.—In the neck there is a stitched-up linear wound 6½ centimetres long, with rather dry edges, on the right side of which is situated a flat, pale protuberance, 2 centimetres high, 1·5 wide, and 0·5 thick. Inside the wound is a large quantity of cotton-wool with bismuth, after the removal of which a cavity is left measuring 5 centimetres in depth and almost as much in length, the opening of which, after removal of the stitch, gapes to the extent of about 2½ centimetres. Moreover, the edges of the wound are tolerably hard, rather raised, and moderately tense. An incision was next made in the middle of the sternum and from thence carried subcutaneously upward on the right by the side of the wound in the neck up to the incision made over the carotid artery on the occasion of the injection.* An incision made through the nodule above mentioned revealed a faintly reddish and, in the deeper parts, rather whitish, moderately compact tissue, from which a whitish juice escaped on scraping. The nodule was situated in the skin and partly in the subcutaneous tissue, but the underlying muscles were entirely free.

"A similar incision was next made on the left side. Here also the muscles on the lateral parts were normal, but in the upper parts they were very tense. Immediately in front of the larynx there was a large tumor on the left side, in the deeper parts of which a medullary-looking infiltration was seen.

"On more extensive exposure of the thorax, considerable ossification of the first rib on the left side became visible. On opening the chest, the lungs, which were pale gray, filled the pleural sacs almost completely and covered the heart. On the left side could be seen several small prominences, beneath which could be felt hard nodules covered with layers of loose connective tissue. Only at one place, near the anterior border, there was a fairly well-defined lobular polygonal area, with dull, rather uneven surface. The left lung, on being pulled out, appeared outwardly quite healthy at its posterior, lower, and upper aspects; it was everywhere full of air, down to the lowest fringes of the lower lobe, close above the diaphragm.

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* For embalming purposes.

"Very slight hypostatic congestion; the collapsed patches in the base contained dilated bronchial tubes, partly surrounding which were layers of extravasated blood. On section, a large number of foci were found in the interior of the lobe, most of which showed much hæmorrhagic infiltration round about, and presented a granular surface on section, while in the centre was a large number of smaller yellowish-white nodules arranged in groups. In some places the foci were of the size of a pea, and contained material resembling pus; in others the whole mass was still solid. Scattered throughout the upper lobe were found similar very pale foci, in which a large number of small yellowish nodules were closely packed together.

"In the foci in the anterior border, which have already been mentioned, very thick discolored clots were found inside the much-dilated bronchial tubes, while the neighboring parts showed thickening of the connective tissue. On slitting up the bronchial tubes in the lower lobe, they were found dilated throughout, with thickened walls, the mucous membrane lying in longitudinal folds; inside were discolored *debris*.

"On the right side precisely similar conditions existed. The apex was perfectly free; but at the posterior and lower part of the lung almost the same conditions of collapse, together with numerous small foci, were found, and similar bronchiectases. In the pleural sacs there were no further contents. In taking out the larynx, the incision was carried immediately in front of the vertebral column and just behind the œsophagus. In the anterior mediastinum a fair amount of fatty tissue was found; the glands were slightly reddened, but otherwise unchanged. The larynx and œsophagus were exposed and ligatured. On the left side of the neck, close to the jugular vein, was a lymphatic gland about as large as a pigeon's egg, which in its interior showed a medullary-looking, partly yellowish spot. On slitting up the œsophagus there was found, immediately behind the cricoid cartilage, a collection of brownish and whitish membranes; on pushing these aside, no trace of perforation was found. Epiglottis large, smooth; edge normal.

"The ary-epiglottic ligaments, especially the left, somewhat swollen, œdematous, but without ulceration. The space at the back between the arytenoid cartilages rather deep, but also free from ulceration. Just at the base of the epiglottis on the left side there was a medullary nodule as large as a cherry; near it was a smoother one, and still more externally some smaller (younger) ones. In addition to this there was a large surface, nine centimetres in length, covered throughout with gangrenous shreds. The lower edge was formed by the trachea. From that point to the thyroid cartilage no cartilaginous structure was found, nor other tissue of the trachea.

"Of the thyroid cartilage itself only the upper portions of the wings, together with the cornua, were found. The distance of the lower end of the tracheal wound from the lower end of the ulcer measured two centimetres and a quarter. This lower edge was moderately clean-cut, extending through the mucous membrane, and presenting below small gray granulations, which covered an area of about half a centimetre. Then followed normal mucous membrane over the still existing tracheal rings. In the tissue of the still existing part of the trachea there was no evidence of cicatrization, but purely normal conditions. Herewith the examination of the body ended, and the latter was sewn up in the most careful manner.

"The macroscopic changes observed were summed up by Dr. Waldeyer and Virchow as follows: Cancerous destruction of the larynx, with secondary disease of a rather large lymphatic gland at the lower part of the left side of the neck, and a cutaneous nodule on the right side near the wound. Œsophagus unaffected. Inflammatory destruction of the upper portion of the windpipe and the neighboring parts. Numerous bronchiectases, with putrid contents. Near these, broncho-pneumonic suppurating gangrenous patches."

(Signed)
Count Stolberg-Wernigerode,
Morell Mackenzie,
T. Mark Hovell,
von Wegner,
Bardeleben,
Leuthold,
von Bergmann,
Virchow,
Waldeyer,
Bramann.

The following is the report of Professor Virchow and Professor Waldeyer on the microscopic examination of sections from the body of the late Emperor Frederick:

"1. The larger nodule at the base of the epiglottis shows, on the outside, still unchanged mucous membrane with cylinder epithelium, but in the interior an alveolar structure, with epidermoidal contents. The cells of the latter are large and highly developed; concentrically arranged cell-groups were not observed.

"2. The cutaneous nodule on the right side of the wound in the neck is covered with extremely attenuated, but otherwise unchanged, epidermis; the cancerous proliferation reaches close to the surface; its chief development is situated in the deeper parts, where also, here and there, 'nests,' with a concentric arrangement of cells, occur. Some normal constituents, such as sweat-glands, are to be seen between the cancerous masses.

"3. The lymphatic gland on the left side of the neck shows the highest degree of change. The normal structure has disappeared, and is replaced by a loose alveolar tissue, the spaces of which are closely filled with epidermoidal cells having large nuclei; many of these cells possess small, bristle-like fringes (*Burstensaume*).

"4. The contents of the bronchial tubes correspond exactly in their composition with the description given by the undersigned Professor Virchow (in his report of May 19th of the present year) on the solid particles found in the expectoration. Moreover, in certain places, a more abundant collection of small, bright fat globules, like the globules in milk, was observed.

"5. In the foci in the lungs were found thick clusters of pus-cells, but no cancer cells. The natural alveolar structure was still perfectly distinct." (Signed) Rudolph Virchow,
Wilhelm Waldeyer.

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INVESTIGATIONS RELATING TO THE ETIOLOGY AND PROPHYLAXIS OF YELLOW FEVER.*

BY GEORGE M. STERNBERG, M.D., MAJOR AND SURGEON U. S. ARMY.

Gentlemen:—You are aware that I have been engaged during the past year in an investigation of the methods of inoculation practiced in Brazil and in Mexico, by which it is claimed that protection against yellow fever is afforded. The subject is one of such great interest to the medical profession everywhere, and of such importance with reference to the sanitary interests of that portion of the United States subject to invasion by the disease in question, that Congress provided for an investigation of the methods of inoculation practiced in Brazil and in Mexico, in the Act providing for the civil expenses of the government for the year ending June 30, 1888.

Having been selected by the President to make the investigation referred to, in compliance with my instructions I first proceeded to Brazil for the purpose of investigating the methods of Dr. Domingos Freire, of Rio de Janeiro, and after my return from that country went to Mexico to make a similar research with reference to the value of the method of inoculation practiced by Dr. Carmona y Valle. My detailed report was submitted to the President about a month ago, and by his permission I am now authorized to make public the conclusions reached. As I am about to go to Havana for the purpose of continuing my researches with reference to the etiology and prophylaxis of yellow fever, I am glad to avail myself of the kind invitation of the College of Physicians of Philadelphia, and to present to you, and to the profession generally, the conclusions which I have reached up to the present date.

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* An extract from an address delivered before the College of Physicians, of Philadelphia, April 21, 1888. From the *Medical News*.

These conclusions are given as follows in my report above referredt o:

"Facts relating to the endemic and epidemic prevalence of yellow fever, considered in connection with the present state of knowledge concerning the etiology of other infectious diseases, justify the belief that yellow fever is due to a living micro-organism capable of development, under favorable local and meteorological conditions external to the human body, and of establishing new centres of infection when transported to distant localities.

"Inasmuch as a single attack of yellow fever, however mild, protects, as a rule, from future attacks, there is reason to hope that similar protection would result if a method could be discovered of inducing a mild attack of the disease by inoculation or otherwise.

"The hypothetical yellow fever germ, multiplying external to the human body in unsanitary places in tropical regions where the disease is endemic, or during the summer months in the area of its occasional epidemic prevalence, establishes infected localities, and susceptible persons contract yellow fever by exposure in these infected areas. We infer, *a priori*, that the yellow fever germ invades the system by the respiratory tract, by the alimentary canal, or from the general surface of the body, and it should be found in the blood and tissues, or in the alimentary canal, or upon the surface.

"Another possibility presents itself, viz., that the germ, multiplying in insanitary localities external to the body, produces a volatile poison which contaminates the air, and that an attack is induced by the toxic effects of this potent chemical poison. The more or less prolonged period of incubation—two to five days in numerous cases in which the attack has been developed after removal from the infected locality—seems opposed to this latter hypothesis.

"In the light of what is known of the etiology of other infectious diseases, the hypothesis that the germ really finds entrance to the body of the person attacked and multiplies within it, is that which presents itself as most probable, and it hardly seems worth while to consider any other unless this is proved by a complete investigation not to be true. In the latter event, we would have to consider the possibility of absorption through the respiratory tract of a volatile toxic agent, or through the skin of a poisonous ptomaine formed upon the surface of the body by a specific micro-organism which does not itself penetrate to the interior.

"Naturally the attention of investigators has first been given to a search for the 'germ' in the blood of those attacked, and in the blood and tissues of the victims of the malady.

"The researches made up to the present time have failed to demonstrate the constant presence of any micro-organism in the blood and tissues of those attacked.

"My own researches, recorded in the foregoing report, show that no such micro-organism as Dr. Domingos Freire, of Brazil, has described in his published works, or as he presented to me in his yellow fever germ at the time of my visit to Brazil, is found, as he asserts, in the blood and tissues of typical cases of yellow fever.

"There is no satisfactory evidence that the method of inoculation practiced by Dr. Domingos Freire has any prophylactic value.

"The claims of Dr. Carmona y Valle, of Mexico, to have discovered the specific cause of yellow fever have likewise no scientific basis, and he has failed to demonstrate the protective value of his proposed method of prophlyaxis."

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RESUSCITATION IN THREATENED DEATH FROM CHLOROFORM.

BY F. T. MILES, M.D., BALTIMORE. MD.

Reprint from Medical Record.

It being now generally conceded that the best means of resuscitating patients threatened with death during the inhalation of chloroform is to invert the position of the body, it is a matter of interest to consider how this change of position accomplishes the result aimed at. The explanation usually given, that the blood is sent in increased amount to the centres innervating the heart and the apparatus of respiration seems unsatisfactory, when we reflect that the cranial cavity is so nearly a completely closed one that the amount of its fluid contents can scarcely be expected to vary to any considerable extent through gravitation. Again, if the heart has ceased contracting, the effect of gravity will be principally upon the blood in the veins, diminishing its onward flow, and thus tending to arrest the movement of the blood in the capillaries. Now we know that stopping the movement of the capillary blood is one of the most prompt and effectual means of destroying the activity of the nerve-centres. Again, the danger to life from the action of chloroform arises from stopping (I do not say paralyzing) the heart, and while we know of a cardio-inhibitory centre in the medulla oblongata the excitement of which will slow, or stop the heart, we know of none whose excitement will increase its strength or arouse its activity. We must therefore look for some other explanation of the beneficial effects of the inverted position.

It appears to me that the strikingly good effect obtained by inverting the position of the body results from the direct excitation of the heart caused by the flow of blood into the right auricle (and ventricle), which takes place when the body is in that position.

The liver is roughly computed to contain one-fourth of the blood of the body. The length of the vena cava inferior, from the point where the hepatic veins open into it to its ending in the right auricle, is quite inconsiderable, and it is held open by its adherence to the comparatively unyielding substance of the liver. It is further kept patulous by its attachment to the tendon of the diaphragm just before empyting into the auricle. The hepatic veins, in their course through the liver to empty into the vena cava, cannot collapse, being adherent to the hepatic substance. All this is favorable to the pouring, so to speak, of the blood from the liver into the right auricle and ventricle when the body is inverted. We know from experiment that one of the most potent means of exciting the excised frog's heart to renewed activity, after it has ceased to beat, is to fill its chambers with blood or other fluids, and I do not see why the sudden distention of the auricle in the human body should not act in a similar manner.

Moreover, it is not impossible that a mechanical influence may contribute to the beneficial effects, inasmuch as the inversion of the body is brusquely made, and thus the sudden pressure of the heavy liver against the diaphragm and heart may act as a mechanical stimulant to the latter.

I have seen one case at least in which, during the inhalation of chloroform, death seemed imminent from stopping of the heart, and in which the organ was stimulated to contraction by pretty heavy blows administered with the open palm over the cardiac region. I see no reason why we should not use mechanical stimulation more energetically in case of stoppage of the heart during the administration of chloroform, even to the pricking of that organ with a needle through the wall of the thorax at the point where it is uncovered by the lung, with or without the transmission to it of the electric current. Of course, such procedures would be confined to desperate cases.

THE

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ORIGINAL ARTICLES.

ON THE RELATION OF THE BACILLUS TUBERCULOSIS TO PULMONARY PHTHISIS.

BY DR. ISAAC HULL PLATT, LAKEWOOD, N. J.

Read before the Medical Society of the County of Kings, June 19th, 1888.

It may seem presumptuous in one who has done no work in the field of bacteriology to enter into the discussion of the microbic origin of phthisis, and I do not doubt that there are many ready to deny my right to speak on the subject. But the great battle now raging in the arena of medical science is of such absorbing interest, that I feel that I must join in the fray if only for the satisfaction of receiving a drubbing, which will very likely be my fate, as I seem to be enlisted on the side of the minority.

My warrant for speaking upon the subject at all I take to be that a complex problem like that under discussion cannot be determined simply by the observation of facts, no matter how skillful and accurate the observers. The facts must be scrutinized and weighed, subjected to analysis and synthesis, for which work experience in practical bacteriology does not seem to be a necessary prerequisite.

It is impossible to overrate the importance of an understanding as thorough as possible of the nature of pulmonary consumption. Outnumbering, among civilized nations at least, every other malady in its victims it is perhaps of all chronic diseases, with one or two exceptions, the most amenable to judicious treatment. Exalted as is the position which I suppose we must claim for the scientific spirit of the medical world, we are not entirely exempt from fashions, furors, crazes, even such as hold sway in the lower spheres of the social and political worlds, and just now the rod of iron under which we needs must bow is the omnipotent and terrible bacillus.

Without attempting to belittle the work of the great pathologists of our times in the field of bacteriology, I believe that the brilliancy of their discoveries has to a great extent blinded us to a just perception of other factors in the ætiology of disease of no less importance than those which they have demonstrated for us.

I do not propose to discuss the question whether tuberculosis can be produced by the inoculation of substances not containing the bacillus tuberculosis. I believe that it is generally conceded that the experiments of Koch, Dawson Williams, and Wilson Fox have proved that in rabbits and guinea pigs it cannot, and as these animals are peculiarly liable to the disease, it may be safely assumed *a fortiori* that the same is true of other animals.

Accepting, then, as proven, that the bacillus tuberculosis is the immediate determining agent in the production of tubercle, and that in its absence tubercle cannot exist—which seems to be all that the most ardent bacteriopathist can claim—do we by this admission concede it to be of supreme practical importance ætiologically or clinically? Is it the factor of supreme importance in reference to the prevention and treatment of pulmonary consumption? So far from this being the case I believe it to be but one link in the chain of causes which leads up to the disease; and as my warrant for this belief, I appeal to the teachings of direct experiment, of pathology, of clinical experience, and of common sense.

First. The argument from direct experiment.—At the meeting of the American Climatological Association at Baltimore last May, a paper was presented by Dr. Trudeau, of Saranac Lake, detailing experiments of the very first importance. The paper was published in the *American Journal of the Medical Sciences* for July, 1887, under the title of "Environment in Relation to the Progress of Bacillar Invasion in Tuberculosis," but it has hardly attracted the attention which is its due, and I will run the risk of repeating what is familiar to many by recounting the experiments.

Fifteen healthy rabbits were divided in three lots. Each of the first lot of five was inoculated in the right lung and left side of the neck with a culture of the bacillus tuberculosis.

Each of the third lot was inoculated in precisely the same manner. The members of the second lot were not inoculated.

The first lot of inoculated rabbits were confined in a small box in a dark cellar, and stinted in the quantity of food allowed them. The second lot of animals (uninoculated) were placed under similar conditions, except that they were placed in a pit in damp ground instead of in a cellar. The third lot of animals, inoculated precisely like the first, were turned loose on a small island in June, and in addition to the grass and green shrubs which the island afforded, they were daily provided with fresh vegetables.

Of the first lot of rabbits four died within three months, the remaining one was killed at the end of four months. In all, the lungs, and in all but the last survivor, the other organs were extensively involved in the tuberculous process. The five uninoculated rabbits placed in the damp pit were all living at the end of four months. They were emaciated and their coats were rough, but when they were killed and their organs examined they were all found to be healthy. So far the results were as would have been anticipated, and only go to confirm previous observations. The interest centres on the fate of the third lot.

One of the five rabbits which were allowed to run at large died just one month after inoculation. The lower portion of the lung was solidified, the bronchial glands enlarged, and a few tubercles could be made out in the spleen. The left lung and all the other organs were sound. The four other rabbits remained apparently in perfect health, and so active had they become that two of them could only be captured with the aid of a gun. All four animals were killed at the beginning of November, or four months after inoculation. They were loaded with adipose tissue and their flesh was so firm and red as to be in striking contrast to the blanched and flabby muscles of the other rabbits previously examined. All the organs were healthy, and even the points of inoculation could not be made out.

Here, then, we have the evidence of direct experiment showing the extreme importance of environment in the determination of the tubercular disease. Environment in this case being the complex of many factors. The first lot of rabbits were not only inoculated with the microbes, but were deprived of light, fresh air, exercise, and sufficient food, and were subjected to dampness and foul emanations. Of the five inoculated rabbits which were allowed to continue their existence under their natural hygienic surroundings, but one succumbed to the disease, and in estimating these results the extreme susceptibility of rabbits to tuberculosis is to be remembered.

Second. The pathological argument.—The views against which I wish to enter my protest are briefly stated by Mr. Frederick S. Eve in Trens Manual of Surgery as follows: "The logical deductions of Cohnheim, soon supported by the discovery of a specific bacillus by Koch, led to the acceptation that they (scrofula, tuberculosis, and caseous nodules) are pathologically identical; that all are manifestations of a chronic and infectious parasitic disease which is produced by a tangible organic contagium. The evidence of their identity was accumulative; it began with the demonstration of structures considered characteristic of tubercle in scrofulous glands and other scrofulous affections; it was rendered almost conclusive by experiments showing that scrofulous products inoculated on animals produced tuberculosis; it was proved by the discovery that the tubercle bacillus is present in scrofulous affections, and that the pure cultivations obtained from them do not differ in their effect from those derived from true tubercle." Certainly the logic of this is remarkable, and only needs to be extended one step further to establish the proposition that any culture medium, which the bacteriologist sees fit to use is also identical in its nature with tubercle; for it also, when inoculated on animals, would produce tubercle and the tubercle bacillus would undoubtedly be discovered in it, if search were made.

The identity of caseous nodules and tubercle can only be maintained by the denial or disregard of some of the most thoroughly established demonstrations of morbid histology. Their utter dissimilarity is shown by Professor Hamilton, of Aberdeen, in his scholarly work on the Pathology of Bronchitis, etc., in a manner which, while showing his thorough mastery of the subject, must, it seems to me, carry conviction to any unprejudiced mind. As one of the results of catarrhal pneumonia, we have nodules composed towards their peripheries of air vesicles loosely filled with catarrhal cells, the outlines of the blood vessels showing distinctly. As we approach the centre of the mass we find the vesicles more closely packed with the catarrhal products, and the blood vessels gradually becoming obliterated. Still nearer the centre the alveolar walls have disappeared, the catarrhal cells disintegrated, the blood vessels have become entirely obliterated; and at last, in the centre we find a homogeneous cheesy mass, the whole representing not a new growth but simply the degeneration which any of the soft tissues will undergo when gradually deprived of their blood supply and subjected to dry decomposition. True tubercle, on the other hand, is a true neoplasm, having with its giant cells and fibrous reticulum a structure distinguishing it from all other growths. It can be seen in its earliest stages growing out of the wall of a vesicle or blood vessel, and in its growth encroaching upon and obliterating other structures by pressure. It being non-vascular, its interior is gradually shut off from its blood supply, and it, in its turn, undergoes cheesy degeneration like any other structure under similar conditions.*

Cohnheim's "logical deduction," referred to by Eve, was "that all is tubercular which by transference to properly constituted animals is capable of producing tubercle, and that nothing is tubercular unless it has that capability." So far from this being proved by the discovery of the tubercle bacillus, it appears to me to have been overthrown; for tubercle was produced by the inoculation of a culture fluid containing the bacillus, which was manifestly not tubercular matter in any sense, except that it contained the bacillus which had been artificially planted there. If this is all that is meant by the word tubercular, the proposition of Cohnheim remains undisputed but meaningless, so far as proving the identity of caseation and tubercle. If anything more is meant, the production of tubercle by the inoculation of a pure culture is its refutation. There is certainly nothing in the discovery of the bacillary origin of tubercle to overthrow the doctrine long ago laid down by Virchow and Niemeyer of the essential difference between caseous pneumonia and tubercle.

What then is the connection between the caseous nodules and true tubercle? In the caseous nodules appears for the first time the characteristic bacillus. It propagates, giving rise to a crop of true tubercles. Hamilton believes the bacillus tuberculosis to be the bacterium of putrefaction, which has become modified by being cultivated upon a caseous basis. Conceding however the specific nature of the bacillus tuberculosis, the fact remains that the caseous masses do form a culture medium for its growth and dissemination. Whether the organism is originated there, or conveyed to them through the medium of the atmosphere, seems to be a matter of comparatively little importance from an ætiological standpoint, in view of the fact that, owing to the ubiquity of the bacillus, it would be almost certain to be implanted upon any soil suited to its reception and growth.

Before leaving the argument from pathology there is one further point I wish to touch upon. If phthisis is originated in a previously healthy lung by contagion, it must be in all ordinary cases by the introduction of the specific germ with the inhaled air. Why then does the disease almost invariably commence at that portion of the lung most inaccessible to the inhaled air and, consequently, to the bacillus, namely, at the apex? The reasons why the morbid process does commence there are sufficiently evident, and have been well shown by Dr. Westbrook in his paper upon the Ætiology of Phthisis, but are wholly inconsistent with the bacillary origin of the disease.

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* Hamilton on Bronchitis, p. 235.

What does clinical experience teach us of the origin of phthisis? A child has measles, the most frequent complication of which, as we all well know, is bronchitis. It extends to the alveoli and becomes catarrhal pneumonia, caseation ensues, tuberculosis follows. A patient suffers from peritonitis or pleurisy; caseation takes place again, tuberculosis follows. In like manner a chain of events ending in tuberculosis may start from the strumous inflammation of a gland. Now, if this proves the identity of struma and tuberculosis, how can we avoid extending our reasoning to measles, peritonitis, and pleurisy, and declaring them all to be identical in their nature, and all of course arising from the same bacillary infection. Indeed the most ardent bacteriopathists have accepted this position in regard to pleurisy, but I have yet to hear that they have extended it to the two former diseases.

Clinical experience further teaches us that tuberculosis is not, in any sense of the word, contagious. Nurses and physicians in consumption hospitals and wards are no more liable to the disease than other people; or if any more liable, the difference is so little that no one has been able to prove its existence. And yet Dr. Theodore Williams and Dr. Ransome have demonstrated the presence of the bacillus tuberculosis in the atmosphere of consumption wards, as well as in the breath of phthisical patients. The few thousand cases where husband and wife, or other persons in close relations, have developed phthisis successively, weigh as nothing against the millions of cases where one has had the disease and the other not. The wonder is that, with a disease of such frequency, the number of mere coincidences should not be greater. As a matter of fact, nobody really believes consumption to be contagious in the sense that measles and scarlet fever and diphtheria are contagious. No one believes that it can be conveyed from a patient to a healthy person by direct contact or through the medium of the atmosphere. Universal experience disproves the idea, and common sense pronounces it absurd. The disease is so common that if its germs float in the atmosphere, every street car and omnibus and steamboat and church and lecture-room must be teeming with them. If contagious, it would exterminate the human race in a few years.

In still another way does clinical experience militate against the theory of the exclusive importance of the microbic factor in the ætiology of the disease; and this is in reference to the results of treatment. Ever since the discovery of the bacillus tuberculosis the profession has run mad on microbicides in the treatment of phthisis. Innumerable schemes for destroying the organisms have been devised, all to result in failure. In the few cases where they have apparently done good, as in the case of gaseous enemata, it has been not by acting as microbicides at all, but by either allaying symptoms or exercising some beneficial influence upon the constitutional condition of the patient. On the other hand, the results of treatment directed to improving the general condition of the patient, as will be seen by Dr. Kretzschmar's paper describing Dr. Dettweiler's sanitarium at Falkenstein, are truly surprising; and it is in this view of the subject that its full importance becomes evident. The importance of not allowing ourselves, in our enthusiasm about the bacillus, to forget the other factors of the disease, the proper recognition of which is of the greatest importance in reference to prophylaxis and treatment.

Phthisis pulmonalis is a disease characterized by caseation in the lungs, which may or may not be preceded by a like degeneration in other parts of the body. The predisposing causes of this caseation are numerous, and may be grouped under the various heads of anatomical peculiarities, inherited, or resulting from imperfect development; acquired diseases in the lungs or elsewhere; unhygienic conditions of life. The exciting cause is (usually, at all events) the gradual withdrawal of blood supply from a part under such circumstances that the fluids can drain off, and it be allowed to undergo dry decomposition; and here we have the main reason for the disease usually commencing at the apex. There is, so far as I am able to learn, no evidence whatever that caseation of the lungs is caused by a specific germ. Tuberculosis is unquestionably an element in the vast majority of cases of phthisis. It is probably the result of a specific germ growing upon the caseous matter. Its development is not the cause of the disease, but an incident in its progress, and I can see no reason for believing that the extermination of the bacilli in a pair of phthisical lungs would cure the disease. The soil remaining fertile for them, a new crop would doubtless immediately appear, and, if they did not, we cannot be sure that the disease might not progress without them.

I do not doubt the value of the light thrown upon the ætiology and pathology of disease by bacteriology, but what I deprecate is the tendency to neglect as valueless the results of the painstaking investigation of years, because a new ætiological factor is found which it is immediately assumed accounts for everything.

DISCUSSION.

Dr. Burge.—I am sure that Dr. Platt will not construe our silence into want of interest in his paper. I have been very much interested, but I do not feel prepared to enter into a discussion of a paper of that sort.

Dr. Butler.—I do not know that I have very much to criticize. I was exceedingly interested in Dr. Platt's paper, the more so because his conclusions are those to which I myself have come after some study of the subject. The very importance of the bacillary origin of phthisis seems to me to have been overrated from the point of treatment and prophylaxis. In the first place it is impossible for all of us to be placed under circumstances where we will not at some time come into contact with the bacilli. Of course the air of the open ocean, of elevated localities, and mountainous regions, is undoubtedly destitute of bacilli; but, as a matter of necessity, we cannot all be placed under such circumstances. Most of us are obliged to dwell in communities where there are large numbers of people living together, where there are a greater or less number of cases of consumption, and, as a natural result, a greater or less number of tubercular bacilli.

As to the destruction of bacilli once they have entered the lungs, that is a subject of great interest. The search after the germicidal agents is unceasing, and every now and then we learn of some germicide by which the bacilli can be destroyed in the lungs; but it seems, if we reflect on the surgical aspects of tuberculosis, we should give up completely and entirely all idea of ever successfully destroying the bacilli when they are once lodged in the lungs. I have seen, and doubtless every gentleman here has seen, cases of surgical tuberculosis where the most energetic treatment was useless; the disease still kept on; there were nests of the bacilli left in the tissues, which at once began to propagate, and the original aspect of the case continued. So far as treatment is concerned, when we come to recollect that animals of different species show varying degrees of resistance to the action of the bacilli, when we think that different individuals of the same species show varying degrees of resistance, it seems to me there is a constitutional organic power of resistance to germs and germ action, and it is to this side of the subject that we as physicians should direct our attention. Exercise, fresh air, good nutrition, and careful attention to all diseases which are not tuberculous but which may possibly place the organism in a condition to acquire tuberculosis,--these, it seems to me, are the important things in the treatment and prophylaxis of tuberculosis, and especially of tubercular phthisis

Dr. Burge.—Dr. Platt's observation, that if tuberculosis were contagious in any considerable degree it would depopulate the earth, was a little strongly put. With all the powers of resistance that are brought to bear against this disease, as shown by the paper itself, it seems to me that the race might be able to stand it and escape extermination.

Dr. P. H. Kretzschmar.—The question of contagion of pulmonary phthisis is one that I consider debatable, and while I myself belong to the same class of sophists as Dr. Platt, still I am not so firmly convinced of the correctness of my opinion as he is. To say as Dr. Platt did in his interesting paper that it is ridiculous to consider pulmonary phthisis contagious, seems to me going too far, for I know of careful observers, with even larger experiences than Dr. Platt, who have expressed very different views on the subject. That phthisis pulmonalis is not directly contagious is proven by the experiments of Dr. O. Bollinger, of Munich. He placed in the wards of the phthisical patients, plates covered with pure glycerine, and kept them there for ten consecutive days and nights, and after injection of this preparation in as large a number as thirty rabbits and guinea pigs, he never obtained a case of tuberculosis. In the hospital of Davos, where many cases are taken in, some of the nurses and sisters have been living there for eleven years, still there never has been a case of the disease contracted there. There is the well-known place Goerbersdorf. Thirty years ago the death-rate from consumption amounted to one per mille, a very low death-rate for the disease. Now during the last thirty years Dr. H. Brehmer had in his institution 13,000 phthisical patients, and during those years the death-rate of the town of Goerbersdorf has been reduced to one-half per mille for pulmonary phthisis. That does not look very much as if the disease were contagious. On the other hand there is Dr. Tacabusch, of Audrensberg, also the medical superintendent of a sanitarium for consumptives, who claims that he has seen the closest signs, or the most positive proof of the contagious character of the disease. And even such an experienced observer as Dr. Herman Weber, of London, claims positive contagion for the disease. I am in the same position as Dr. Butler, and in the majority of Dr. Platt's conclusions I agree with him. There is no doubt that the bacilli do not develop the disease without predisposition in the patient. The tubercular bacillus, if introduced into the organism by vaccination, produces bacillary disease, but tubercular bacillus by its presence in the air will hardly ever produce bacillary diseases except in cases of predisposition. And that relates directly of course to the treatment. The treatment of phthisis must necessarily be prophylactic. Prophylaxis has produced results which are well worthy of imitation; and I believe that all our efforts should be concentrated in the proper prophylaxis. I believe by proper prophylaxis and proper treatment "AGAINST PREDISPOSITION" we will obtain better results in treating tubercular diseases than we have obtained heretofore.

Dr. EVANS.—I do not believe that I can add anything of value to what has been said on this subject. An eminent writer has said, "Any one who wishes to discuss pulmonary tuberculosis must first state his views on the subject in general; for so many different opinions prevail concerning tubercle, that unless he first states to what condition he applies this word he cannot be understood." Our time is too limited for me to follow that advice to-night.

With reference to the contagious transmission of tuberculosis by breathing air charged with tubercle bacilli, Koch admits that certain pathological conditions are highly favorable, if indeed not necessary, for the reception of the germ. To Dr. Platt's statement that, "If tuberculosis was a contagious disease the world would soon be depopulated," I might reply that if its depopulation depended on the contagious transmission of disease, the event would have happened prior to Dr. Jenner's time from small-pox. In regard to Dr. Platt's statement as to the impossibility of removing tubercle bacilli from the lungs, with or without surgical procedure, I wish to say that Prof. Hamilton, of Aberdeen University, was recently quoted by Dr. Auld, in the *London Lancet*, as having numerous bacilli in the sputum of a phthisical subject, which disappeared subsequently, the patient making a spontaneous recovery. In an able appeal for the establishment of institutions in this country for the rational treatment of pulmonary consumption, which was made a short time ago by Dr. Kretzschmar in the form of a paper and read before the New York Academy of Medicine, Dr. Dettweiler was quoted as having frequently noted the disappearance of tubercle bacilli from the sputa of phthisical subjects.

Regarding the curability of pulmonary consumption, I quote Dr. C. T. Williams, who reports over forty-one per cent. of recoveries occurring in his private practice, which were secured by residence at great altitudes, from 5,000 to 9,000 feet. Dr. Herman Weber reports thirty-eight recoveries out of one hundred and six cases, and I may also refer to to the results obtained by Drs. Dettweiler and Brehmer as quoted by Dr. Kretzschmar. Herman Weber says these figures are perfectly reliable.

Inasmuch as the antiseptic treatment of diseases which are dependent upon septic influences the result of putrefactive decomposition has been so successful, I cannot understand why it should not be right to utilize it in an affection where we have the air-passages more or less filled with putrid sputum.

Dr. EVANS.—With reference to giant-cells being found exclusively in association with tubercle, if I remember correctly, Dr. Platt stated that it was *characteristic* of tubercle. Ziegler demonstrated at a time when it was my good fortune to be one of his pupils, that neither giant-cells nor epitheloid-cells are exclusively confined to tubercle, but are to be found in all granulations. Ziegler succeeded in producing tubercle between two small cover glasses, by inserting them under the skin of dogs and permitting them to remain there for about twenty days. Granulation tissue, the result of mechanical irritation, forced itself between the two pieces of glass (which had previously been fastened together in such a way as to permit of a space just wide enough for capillary attraction), the capillary loops failing to unite with each other because bulbous on ends, and gave on section, under the microscope, the characteristic giant-cells. In tubercle, such as we find in the lungs of phthisical subjects, these capillary loops fail to unite, in consequence of which the central zone of the tubercle fails to get its proper supply of nutriment, and caseation results.

Dr. P. H. KRETZSCHMAR.—At no time have I claimed the disappearance of the bacilli in as many as forty-four per cent. of the cases. Dr. H. Brehmer, of Goerbersdorf, reported to me fifteen hundred cases in which bacilli had been present at certain times; he discharged of these fifteen hundred about thirteen per cent. cured. That is to say, he discharged them cured after the disappearance of the phthisical signs and after the disappearance of the bacilli tuberculosis in the expectorations, upon ten successive examinations twice a week, extending, therefore, over a period of five weeks.

Dr. EVANS.—I simply quoted Dr. Kretzschmar as referring to the disappearance of bacilli from the sputa of those cases which Dr. Dettweiler reported as recovered.

Dr. P. H. KRETZSCHMAR.—If a patient after remaining from six to ten months in a sanitarium has had his bodily strength considerably improved, if at the end of that time *all* the physical signs of the disease have disappeared, and if at the end of that time the bacilli have disappeared, Dr. H. Brehmer and Dr. Dettweiller—and I fully agree with both—consider those patients cured; and there have been reported seventy-two cases of such cures—cures extending over a period of not less than three and not more than ten years. None of the cases are reported cured unless a report from their family physician states that they have been cured of the phthisis pulmonalis, and have remained free from the disease for at least three years.

Dr. PLATT.—I am sorry that I did not succeed in making myself more intelligible. I did not intend to say that the bacillus tuberculosis was not the germ of tubercle. This of course no one disputes, but that it is the sole cause of phthisis, I do not believe. I see no evidence to lead me to believe that the germ falling upon healthy lung tissue will give rise to tuberculosis. All the evidence goes to show that prior disease must have existed.

In regard to Dr. Kretzschmar's remark about the contagious character of the disease. I certainly did not intend to say that nobody believed it to be contagious in any sense whatever. What I did say was that I did not believe that anybody thought the disease to be contagious in the sense that measles and scarlet fever are contagious. Measles and scarlet fever are contagious in the sense that a perfectly healthy person, spending a short time in the presence of a patient suffering from one of these diseases, will probably contract it, if he has not already had it. That any one really thinks consumption contagious in this sense, I said I did not believe, and I do not believe it yet.

Dr. Evans says that giant-cells are found in structures other than tubercle. This is a question I will leave to some of our pathologists. My only point in reference to giant-cells is, that they are found in true tubercle, and not in caseous nodules. This I mentioned as one of the distinctions between them, and I did not understand Dr. Evans to dispute it.

ON THE TREATMENT OF ROTARY LATERAL CURVATURE OF THE SPINE.*

BY JOHN RIDLON, A.M., M.D.,

Attending Orthopædic Surgeon to St. Luke's Hospital; Attending Surgeon, First Orthopædic Division, Department for Out-door Poor at Bellevue Hospital; Late Instructor in Orthopædic Surgery, Medical Department of the University of the City of New York; Late Senior Assistant and Out-door Visiting Surgeon of the New York Orthopædic Dispensary and Hospital, etc.

For convenience of prognosis, and the consideration of the indications for treatment, lateral curvature may be divided into three stages:

1st. Curvature, without or with but slight apparent rotation, the spine being still flexible, and it being possible by voluntary muscular effort, passive manipulation, or posture to straighten the spine for a short time.

2d. When two or more segments of the spinal column are rigid and the curve cannot be wholly obliterated, but while there is as yet no complaint of pain or special weakness.

3d. When the second stage has existed for a considerable time and the curvature has progressed to a considerable degree, and there has come to be more or less pain and no little disability from weakness.

As to prognosis: In those of the first class the spinal column can be made straight and the muscles sufficiently strong to hold the patient habitually in the normal position. In the second class the progress of the deformity can be checked, the habitual position greatly improved, and the general appearance and carriage made much more graceful. In the third class of cases the pain is relieved or cured, the weakness disappears, and the general condition is improved; but the deformity remains, almost in its entirety.

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* This paper embodies the remarks made by the author at the reading of a paper on "The Present Status of the Treatment of Rotary Lateral Curvature of the Spine," by Dr. Samuel Ketch, before the Section on Orthopædic Surgery of the N. Y. Academy of Medicine, March 16th, 1888.

I have treated, and seen treated, a large number of these cases, the aim being to render more flexible, and in some measure straighten, the the rigid curve; and I do not feel certain that I have seen this in any degree accomplished, and I certainly have not seen any such made straight.

As to treatment: All patients should have the best possible hygienic surroundings; they should be properly fed, and so clothed as not to increase the deformity or hinder its reduction. Clothing that can be supported at the hip should not be suspended from the shoulders; and the corsets should be arranged to accomplish this, and so as not to constrict the lower border of the ribs. The test applied by Mr. Bernard Roth is a good one: to attempt to fasten the clothing when heels, hips, shoulders, and head all rest against a door or wall. All cases should have certain exercises, to be discussed later, and when at rest should be so placed as to be in the position nearest possible to the normal.

As to supports, corsets, plaster-of-Paris jackets, and braces devised to correct, or help to correct, the deformity, it is a fair question if they are necessary or even unobjectionable in the first class of cases. The same may be said of the second class, but probably with less force. If apparatus be used, it should be light, elastic, and so arranged as not to constrict the chest in any way; and it should be a *progressive apparatus* that can from day to day be made to follow the changing outlines of the patient. Supports of annealed steel, felt, leather, plaster-of-Paris, woven wire, etc., are, in the author's opinion, contra-indicated in this class of cases.

In the third class a support is very often demanded to relieve the pain and sense of weakness, and to enable the patient to go about with a greater degree of comfort. Here less elasticity and more fixity is indicated than in the second class, the main object being to make the patient comfortable and to hold him so. Whether a support is used or not, patients are much benefited by a systematic course of baths, electricity, massage, and exercises. The principle, taught by Mr. Bernard Roth, of London, of exercising the patient in the "keynote" position, has a value which has not been understood or appreciated in this country. The fact that prominent orthopædic surgeons have asked me "Just what is meant by the 'keynote' position?" is my excuse for referring to it and to Mr. Roth's system of exercise.

The "keynote" position simply means the *best possible* position into which the spine can be brought by voluntary muscular effort of the patient for a short time. This is well shown in the illustrations taken from a reprint from volume xix. of the "Clinical Society's Transactions," London.

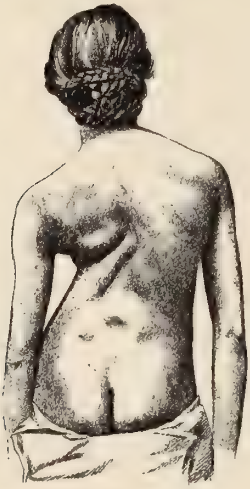


Fig 1

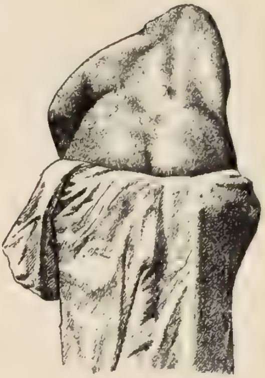


Fig.2

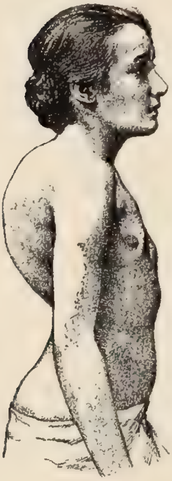


Fig.3

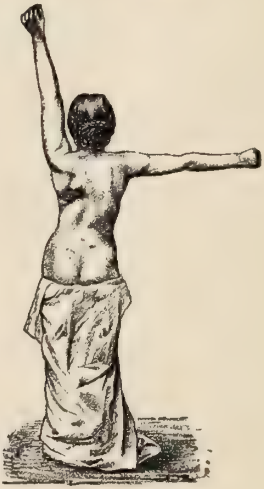


Fig.4.

Fig. 1—Habitual position. Posterior view. Fig. 2.—Trunk flexed, to show osseous deformity of ribs posteriorly. Fig. 3.—Habitual position. Right lateral view. Fig. 4.—"Keynote" position.

An effort is made to so educate and strengthen the muscles that this best possible position of the spine becomes the habitual position. The exercises, as laid down in the "Dictionary of Practical Surgery," edited by Mr. Christopher Heath, are as follows:

1. Lying on back, arms by the sides of the body, hands supinated, slow, full inspiration by the nose; slow expiration by the mouth (repeated four times).

2. Similar exercise with the arms extended upwards by the sides of the head (repeated four times).

3. Same position as 1, head rotation on axis to right and left alternately; also lateral flexion of the head to right and left alternately (four times).

4. Lying on back, slow simultaneous circumduction of both shoulder-joints from before backwards, elbows and wrists extended (twelve times).

5. Same position as 1, hip circumduction both ways slowly; knees kept extended (ten times).

6. Lying on back, simultaneous extension of both arms upwards, outwards, and downwards from a position with the elbows flexed and close to the trunk (four times).

7. Lying prone, hip circumduction both ways; knees kept extended (ten times).

8. Sitting on couch with back at an angle of 45°, ankle circumduction down, in, up, out, the toes being directed inwards the whole time (twenty times); also foot abduction (patient resisting); abduction (surgeon resisting) (eight times). [This may be omitted if there is no tendency to flat foot.]

9. Lying on back, arms extended upwards by the sides of the head; slow flexion of both arms (surgeon resisting by grasping the hands), followed by extension (patient resisting) (six to eight times). The patient's knees flexed over the end of the couch or table, fix the trunk.

10. Patient sitting astride a narrow table or chair without back, with arms down and hands supinated, trunk flexion at the lumbar vertebræ (patient resisting slightly), followed by trunk extension (surgeon resisting by his hand against the back of the patient's head) (six to ten times).

11. Patient with arms extended upwards, leans against a vertical post or door fitted with pegs on either side, which he grasps; the surgeon gently pulls the patient's pelvis forward by his hands on the sacrum (patient resisting), and the patient then moves back the pelvis to the post or door (surgeon resisting), (six to eight times). At no time are the patient's heels to be raised from the floor. Also pelvis rotation on its axis to right and left alternately (surgeon resisting with his hands on each side of the pelvis), (six to eight times).

12. Lying on back with head and neck projecting beyond the end of the table, arms at the sides of the body, hands supinated; the head is gently flexed by the surgeon's hand on the occiput (patient resisting,

followed by head extension (patient resisting), (eight times).

After the patient's condition has been somewhat improved and some considerable strength gained, the following exercises are added to those before mentioned:

The patient with the feet slightly apart and the heels flexed against a ledge or wall, rests with the front of the thighs against a low padded horizontal bar while holding herself as erect as possible; the surgeon then gently flexes the patient's trunk by pressing his hand against the back of her head (patient resisting), and then the patient slowly recovers the vertical position against the surgeon's resistance.

After three or four weeks two more are added, namely: Forward lying, heels fixed, trunk extension and flexion.

Long sitting, trunk extension and flexion.

After having these exercises daily for three months at the hands of the surgeon, the patient goes home to continue them herself for a like or a longer period; she then returns for a short time to the surgeon and again goes home to continue them for six to twelve months before returning for final measurements and records, and is then discharged.

337 West 57th Street.

NOTE ON THE DISINFECTION OF PHYSICIANS' CLOTHING.

BY ROBT. L. DICKINSON, M.D.,

Lecturer on Obstetrics and Assistant Obstetrician to the Long Island College Hospital.

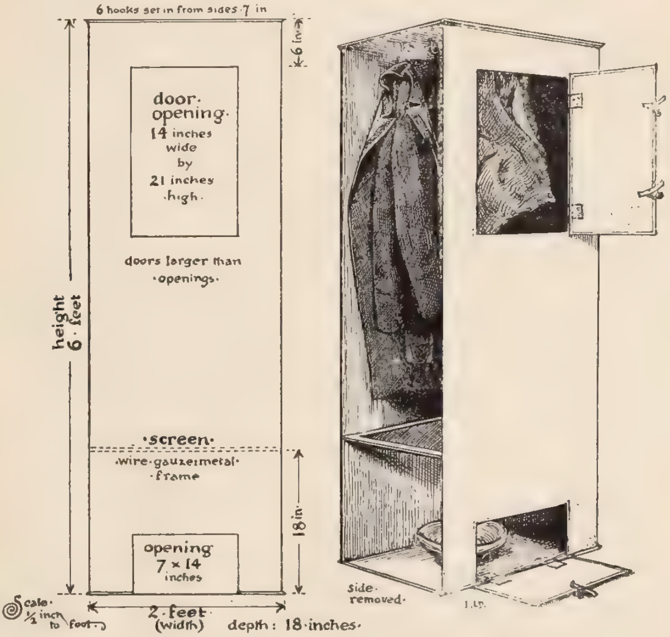
Read before the Medical Society of the County of Kings, June 19th, 1888.

A simple, ready method is needed—and an inexpensive one as well. The man busy in practice will shirk cumbrous devices. If he has but to hang his suit on a hook, touch a light to a dash of alcohol, and close a door, he is altogether likely to carry out his good resolutions, and sterilize his clothing after every exposure. The galvanized iron closet devised by Dr. Chas. Jewett, which I have used for some months with much satisfaction, meets these indications. Certain modifications suggested by experience are added in this description.

Few houses have spare closets which can be kept empty for this purpose, or so placed that fumes escaping would not greatly inconvenience the occupants of the remainder of the floor. But the metal box may be placed in any desired position, as in the yard or under the front steps.

The disinfectant used is sulphur. The employment of dry heat at 230° Fahrenheit for one or two hours is impracticable by any simple method which does not require watching. Steam saturates, and might cause shrinking. Chlorine acts only in the presence of moisture, under which condition the colors and texture of fabrics will be affected. Sulphurous acid gas is efficient, inexpensive, and easily produced. It is endorsed by the writers on hygiene, by the National and local Health Boards, and by the Committee on Disinfectants of the American Public Health Association in their exhaustive report (Dr. Sternberg, Chairman, in Phila. Med. News, December, 1885).

Half an ounce is all that is required by the cubic air space of this closet, but I usually throw half a pound into the bowl to ensure the most complete saturation, and to allow of some leakage. An ounce of alcohol ignites the sulphur readily. More than a small quantity of alcohol should not be used for fear of the flames leaping up high—although danger of igniting the clothes is obviated by the screen.



Galvanized iron fumigating closet: elevation and perspective. The side is removed to show the interior, with the screen between the two compartments.

The closet should be six feet high, two feet wide, and eighteen inches deep. A shorter closet brings the clothing down on the screen. The screen is made of ordinary mosquito wire gauze. The openings are kept as small as they conveniently may be. Should the upper door not close tightly, a piece of cloth larger than the door can be placed on its inner side and lapped back over its edges, although this has not been found at all necessary in practice.

Four hours' exposure of the clothing in this closet is probably sufficient, but the suit may well be hung up in the evening and left over night. It may be worn again in the morning without needing to be aired; in such case the wearer scents sulphur faintly for some hours, but no one else is conscious of the odor.

The cost of this closet is about thirteen dollars.

A CASE OF DYSTOCIA, CRANIOTOMY, AND DOUBLE PHLEGMASIA DOLENS.

BY LUCY M. HALL, M.D.

Read before the Medical Society of the County of Kings, June 19th, 1888.

Mrs. ——, age 27, primipara; a small, delicate woman, with weak muscles and a large amount of adipose tissue. Blood impoverished from a steady loss of albumen through the urine during the later months of gestation.

Last menstrual period, March 12th, 1887. Labor pains began at 1 A.M., February 4th, 1888.

Upon my arrival, at 3.30 A. M., I found that the liquor amnii had escaped with the first pain. The os uteri admitted the tip of the finger and was dilatable, the head of the child was crowded against the symphysis pubis, the posterior fontanelle could not be found, thus making a diagnosis of position at that time uncertain. (Later it was found to be first dorsal.) The child was evidently large, the pelvis small.

The pains were irregular until about midday, at which time the head had not advanced perceptibly; the os uteri was still dilatable, but as there was no bag of waters present and the head did not engage, it was no larger than when first examined.

At about this time the pains assumed a greater degree of intensity; and their quality growing more exasperating to the patient because of their inutility, ether was administered from time to time in small quantity.

Hydrate of chloral was given by the rectum; ointment of belladonna was smeared freely over the cervix. The effect of posture, notably the knee position, was tried, but all without avail.

At 6 A.M. the pains were furious. The uterus was firmly contracted upon the child, the os uteri was irritable and less dilatable than at first; there had been no advance of the head.

Dr. W. H. Thayer was now called to assist in the case. After his arrival the patient was thoroughly anæsthetized, and while he attended to the ether I forcibly dilated the os and applied the forceps. I found, however, that the resisting cervix stretched across from blade to blade like strips of cartilage.

This condition was partially relieved by two small incisions made in the lower segment of the os.

The most forcible traction with a Tarnier's forceps failed to accomplish the slightest advance of the head. We were finally forced, though with great reluctance, to abandon the hope of delivery by that means.

Version was not to be thought of under the conditions. Craniotomy was the only alternative.

The fœtal heartbeats had ceased. The genitalia of the mother were much congested and were swelling rapidly. The strength was becoming exhausted. Without further delay I made a crucial incision with Smellie's scissors into the most dependent portion of the head, and broke up a considerable portion of the skull and brain, and tried to bring down the remainder with the blunt hook. Failing in this, as much of the contents of the skull as possible were evacuated, and the long forceps were again applied. The head, now much reduced in size, was rapidly brought below the pelvic brim. Even now the resisting os and the small and swollen passages made extraction very difficult. At 12.30 A.M. a large, mature-looking male child was delivered.

Ergotine was given hypodermically, the placenta was quickly expelled, and the uterus contracted well under the hand.

Examination showed rapidly increasing œdema of the labiae. The vaginal tissues were of a purplish brown, and along the lines of the excoriations, so friable that they almost seemed to crumble under the fingers. The laceration of the perinæum extended through the sphincters ani and upward through the rectum to the extent of one and one-half inches.

The anæsthetic had been suspended as soon as the delivery was effected, but the patient still slept heavily and the parts had little of their natural sensitiveness remaining. I therefore rapidly inserted catgut sutures, beginning with the lacerations of the vagina, then closing the rectum, and finally the perinæum. In all about twenty sutures were introduced.

A dressing of listerine and water was applied over all.

The patient now began to recover consciousness. The pulse was feeble and variable, the face ghastly.

Hypodermics of brandy were administered, and she revived somewhat. Soon she vomited a very large quantity of a dark green watery fluid. The prostration was extreme. The pulse could not be counted; a feeble flutter only being perceptible. The skin was covered with a cold, clammy perspiration. Brandy was again administered. The nausea was partially controlled by morphia, one-eighth grain, dry upon the base of the tongue.

Neither weight nor measurement of the child was taken, partially because only approximate results could be reached at best, but more especially because the mother demanded the closest attention. She was at no time permitted to see the remains of her child or to know of the more serious details of her delivery.

At 12 P. M., Sunday, I ventured to leave the patient in charge of a trained nurse and the husband. Returning at 5 P. M., I found her with a weak thready pulse, 120 to 130 per m. Temp. 100° Fah., features pale and pinched, and with the abdomen enormously distended by gas.

She had taken brandy and beef tea or milk every hour. I now ordered quinine, grains two; digitaline, grain one-sixtieth, every four hours, in addition to the nourishment and stimulant, also vaginal irrigations of warm carbolized water every three hours. Rectal tube inserted for escape of gas.

Feb. 6th, A. M.—Temp. 102.6. Pulse irregular, 124–144. Bladder irritable, able to urinate.

Feb. 6th, P. M.—Dr. Thayer saw the patient with me. General condition as above. Genitalia enormously swollen. Labiæ œdematous. Perinæum dark, purplish red, with vivid flamelike ridges extending to right and left. In spite of the discouraging appearance of the parts, it was determined to retain the stitches as long as possible.

Cloths were wrung out of hot water, to which listerine, ten per cent., had been added, and applied to the perinæum, changed every fifteen minutes. This treatment was continued with the happiest results until the morning of the seventh, when hot flax-seed poultices, powdered with idoform, were substituted.

February 7th, A. M., temperature 100.4°, pulse weak and rapid, respirations shallow, eyes glassy, lips blanched, tongue covered by heavy brown coating.

Abdomen still distended with gas, visceral irritation more marked, but injured parts less inflamed. Whenever the patient fell asleep, after a few minutes the skin became cold and covered by a profuse perspiration, the features became pinched, and the pulse almost imperceptible, the condition growing more pronounced until she was awakened and stimulants freely administered, when she would slowly revive.

The one favorable feature of the case was that the stomach, as a rule, bore liquid food in reasonably free quantities. Beef extract, Murdock's liquid food, bovinine, diluted cream, egg nogg, milk, koumyss, and stimulants were all administered as necessity demanded.

The patient was closely watched, and threatened collapse met by the free exhibition of alcoholic stimulants, ammonia applied over heart, heat to extremities, etc.

8th and 9th.—Weak and nauseated. Pulse 124, temperature 99.6° to 100°.

On the morning of the 10th, I was summoned at an early hour to find the patient cold, pulseless, and apparently dying. After persistent exhibition of the restoratives above mentioned, she slowly recovered, the face lost some of its ghastliness, the pulse became perceptible and settled to 138 per minute.

11th, 12th, and 13th.—But little change in the condition of the patient. The heart's action was feeble, the pulse remained at 120 +, the temperature at 100° or thereabouts, the abdomen was still tympanitic, the desire to urinate was almost constant and was a source of great discomfort to the patient, the secretion of milk was but moderate and was readily controlled, the condition of the perineum was more promising, a semi-fluid stool had been passed.

14th.—Slight general improvement.

On the morning of the 15th the patient seemed somewhat brighter, she had slept longer and well, less vital depression, and the symptoms of heart failure had been less alarming during the last twelve hours. The pulse still held at 120. The bladder was very troublesome, the injured parts suppurating and sore.

The patient was still so weak, nervous and excitable that she had been permitted to see no one but the physician, husband, and nurse, and upon this morning I had felt it necessary to emphasize the order that no one be admitted to see her, because of the importunities of a lady friend.

15th, later.—The patient became greatly alarmed and excited by a person who represented himself as a physician, and who forced himself into the sick-room, and insisted upon talking to her in what seemed to her a most unaccountable manner. At 3 P.M. a severe nervous attack came on, and a little later the patient for the first time complained of a pain in the right loin which extended to the thigh. A restless and anxious night followed.

16th.—Temperature 100°, pulse 124; pain more severe, nervousness increasing.

17th.—Temperature 101°, pulse 120 to 130; tenderness along line of femoral vein with intense pain. Hot fomentations and anodynes applied.

18th.—Temperature 103°; pulse 120 to 132, feeble and flickering. Complained of feeling very weak, especially in the region of the heart. Strophanthus tinc., in doses of five minims, seemed to increase the exhaustion. Digitaline resumed.

19th.—Temperature 103, pulse 138 to 148. Leg and foot greatly swollen, pain less severe.

Leg and foot elevated and wrapped in cotton batting, tincture of iodine having previously been applied along the line of the femoral vein and over the most brawny portions of the thigh.

Patient nauseated and unable to take her food, much excited, and in great fear of dying. Vini ipecac minim one, upon base of tongue controlled the nausea, so that food could be retained in small quantities. Quinine, grains three, every three hours. (The quinine had been discontinued because of head symptoms.) Muriated tinct. of iron, minims two, every hour; monobromate of camphor, grains three, every four hours. (Morphia could not be employed because of its depressing effect.)

20th.—Temperature 103.2°; pulse weak and variable, 130+. At times only a feeble flutter could be detected. No control over evacuations from bladder or rectum.

21st.—Summoned in great haste. Patient in collapse. Friction and hot applications to surface. Ammonia over heart, and free use of brandy internally induced a feeble reaction. Temperature 104°; pulse imperceptible at first, finally steadied and remained at 138. Patient complained of distress and weakness in cardiac region. Nausea extreme, and no food retained for several hours. Wine of ipecac, as above, with sinapisms over epigastrium, again relieved the nausea, and small quantities of fluid nourishment could be retained.

22d, A.M.—Temperature 103.9°, pulse 138. Bowels loose; still no control of evacuations. Leg painful; tissues of ditto brawny in some parts, boggy in others. Patient able to sleep but little, and never more than a few minutes at a time; awakes frightened and with feeling of distress and weakness in region of heart. Relief was gained only by a free use of stimulants. P.M.—Temperature 104.4°, pulse 132–140. Restless and anxious.

23d.—Temperature 101°. Pulse 124. Very weak.

24th, Friday.—Summoned in haste at 2.50 P. M. Patient believed to be dying by nurse and husband. Cold and pulseless, features ghastly and pinched. Cold perspiration hanging in beads upon the forehead and around the mouth. Restored as upon former occasion by heat friction and stimulants variously applied.

(Two trained nurses were now in attendance.)

25th.—Discharge of bright red blood from uterus. Pain in left inguinal region. Left leg swollen near ankle. Hot flax-seed and laudanum poultices applied.

26th.—Temperature 103.3°. Pulse 124. Left leg swollen to twice its usual size. Tenderness along line of femoral vein. Pain severe. Patient nervous and restless.

27th.—Temperature 103.5°. Pulse weak, thready and variable. Both legs painful, both enveloped in cotton and elevated. Patient suffered from constrained position. Slept but little and always with alarming symptoms of collapse after first few minutes. Stimulants and concentrated liquid nourishment administered freely.

28th.—Temperature 104°. Pulse 140, weak, often imperceptible. The sadly taxed and enfeebled heart seemed unable longer to bear the strain put upon it. During the forenoon an unusually severe sinking turn occurred and was relieved only through the most persistent effort. The mental tension was extreme—always a serious feature of the case.

During the night the temperature remained at 103°; the pulse ranged between 130 and 140; the prostration continued unrelieved.

29th.—Temperature 102°. Pulse 136. Right leg not quite so much swollen and tissues regaining something of their normal tone.

Bandaged with flannel, torn crosswise and sewn end to end, thus making a soft *springy* bandage.

Left leg enormously swollen and hard and brawny from hip to toe.

March 1st.—Temperature 101°. Pulse 120.

March 2d and 3d.—Not much change.

March 4th to 7th.—Temperature normal. Pulse 124 130.

8th.—Hectic spots in cheeks in afternoon. Temperature rose to 103° F., but soon fell to 99.5°.

Each night at about 2 A. M. the vital powers seemed to fail, when stimulants were crowded, until 7 or 8 A. M., then the pulse would grow stronger, and the ghastly appearance of the face become less marked.

9th.—Chill at 3 P. M. Temperature rose to 103°, but fell to 100° at evening.

10th to 14th.—Gradual improvement. Swelling of right leg much reduced and tissues more elastic except in upper and inner portion of thigh. Left leg still greatly swollen, but a little less hard.

Vesical irritation and tenesmus again set in at this time. This yielded to the usual remedies.

17th.—Temperature normal. Pulse 96. (The pulse had now fallen below 100 + for the first time since illness began.) Patient able to take rare steak and oysters besides liquid food.

Convalescence now progressed steadily. The circulation slowly established itself in the new channels. The tongue cleared, the appetite improved, the sleep became more natural.

March 27th.—No swelling remaining in legs. Hard knotted cords along line of femoral vein. Legs covered with a blue meshwork of dilated veins. Lacerated parts well healed, a perfect sphincter ani and thick, strong perinæum having been obtained. Patient took a few steps the first since February 4th.

The points of interest in the case are, taken in an inverse order, the severe complications, venous, cardiac, vesical, traumatic. The fact that the pelvis was small and the child unsually large. The possibility of prolonged gestation (last menstrual period March 12, 1887; confinement February 5, 1888. The date of first fœtal movements was not remembered).

The most serious obstacle to delivery lay, however, in the immobile condition of the bones of the skull, and the almost complete absence of the posterior fontanelle.

From a paper read by Dr. Grace Peckham before the Academy of Medicine in New York, in April, 1888, upon "Wormian Bones and their effect upon Parturition," I have been led to the conclusion that in this case the posterior fontanelle was probably occupied by Wormian bones.

Another feature of the case was the depressing effect of morphine, rendering the use of this drug inadmissable, and also the very limited amount of quinine which the patient could bear without suffering from most distressing head symptoms. The judicious use of stimulants and the persistent administration of the most nutritive fluids were the main reliance in the treatment.

DISCUSSION.

Dr. Dickinson.—In Dr. Hall's elaborate notes I hear no reference to the antiseptic methods which were used. I also ask for information concerning the size of the pelvis.

Dr. Hall.—I would say that the nail-brush, the bichloride, carbolic acid, and such disinfectants as those, are always in my bag. I would hardly have spent six months in a German hospital without knowing and rigidly practicing all antiseptic precautions.

Dr. Dickinson.—I asked the question simply to elicit the observation from the Doctor. I understood her to say that no antiseptics were used during the labor itself.

Dr. Hall.—Carbolic acid and Listerine were used at the time of confinement. With regard to the size of the pelvis, it was a small pelvis packed with adipose and other tissues—one of those pelves which is small to begin with, and packed very full. So far as measurements are concerned, I was able to reach the promontory of the sacrum with my second finger, but not with my first.

Dr. Dickinson.—Except in the presence of cancer of the cervix, craniotomy is called for only in the most exceptional cases of rigidity. Where the head is high up, version is preferable. The possibility of a Wormian bone in the posterior fontanelle is less credible than the supposition that this fontanelle was simply a joining of three sutures with no distinct opening, as is so commonly the case.

In the best private practice, where all the surroundings are scrupulously clean, the necessity for the use of antiseptics is not at first obvious. The germicide is an *additional* safeguard of the highest value. Its routine use ensures the scrubbings. Carried in a small vial in the pocket, the bichloride or biniodide tablets enable one to make solutions in two minutes, and to be sure that nothing comes in contact with the vulva or vagina that has not been sterilized. We can prevent these terrible cases of septicæmia, and cut down the death-rate of one in a hundred found in private practice to the one in a thousand of the best maternities.

Dr. Thayer.—An injection of sulphate of atropia into the tissue of the cervix uteri, a method which was introduced by the late Dr. Hunter, of Morrisania, is undoubtedly very effectual in the majority of cases. But I think there was a certain amount of rigidity in this case which could not be overcome by any relaxing agent; nothing but a knife would have any effect upon it. As to the use of disinfectants, any one acquainted with Dr. Hall's practice knows that it is not necessary to say anything on that score. It seems to me that the exceeding smallness of the pelvis was as great an obstacle as the size and character of the head. I do not know that Dr. Hall has emphasized this so much as the circumstances required. It was evident that it was absolutely impossible for the woman to be delivered of a living child; and the impossibility lay in the size of the head somewhat, but chiefly in the fact of the very small pelvis and the amount of soft tissue; and craniotomy was not undertaken until all other possible measures had been employed.

Dr. Skene.—This paper by Dr. Hall is a very complete and interesting one, especially that which pertains to the after-treatment and the results obtained. I will not undertake to discuss the whole subject, but limit my remarks to the question of craniotomy, its dangers and how to avoid them. It is well known that craniotomy is, or has been, very dangerous to the parturient woman owing, no doubt, to the damage done to the pelvic organs during the operation. Recognizing the difficulties and dangers of the operation, I devised (ten or fifteen years ago) a method of operating which made this mode of delivery much easier and safer. Perhaps it would be more correct to say that my method is a modification of the ordinary operation of craniotomy based upon one of the principles of gynæcological surgery, i. e., operating through a Sims' speculum. In this way the operator is guided by the sense of sight as well as that of touch, and the cervix uteri and vaginal walls being kept out of the way are guarded from injury.

The details of the operation are as follows: The patient being placed upon her left side, in the semi-prone position, a Sims' speculum of the largest size is introduced. The anterior vaginal wall and the anterior lip of the os uteri are raised by an elevator or retractor. The cranium is then opened by means of a perforator. Several openings should be made, and the intervening bones removed. This gives room for the rapid removal of the brain. The bones of the head should then be separated from the scalp by a uterine sound, and each one removed by carrying one blade of a forceps into the cavity of the head, and the other between the scalp and the bone, each piece being twisted from its attachments. If the space be small, each bone may be broken into fragments. By operating in this manner, the scalp protects the soft parts of the mother from laceration by the sharp edges and fragments of the detached and broken bones. Sometimes when the bones are imperfectly ossified, they can be removed with more facility by using the ordinary bullet forceps.

When the cranial bones have all been removed in this way, the remains of the head can be delivered by means of the blunt hook or craniotomy forceps, or by applying the ordinary craniotomy forceps. When the pelvis is very much contracted, the whole of the head and body can be removed in pieces in the way described. By this method of delivery, the injuries which are so dangerous can, to a great extent, indeed wholly in most cases, be avoided.

During the discussion the question of antiseptics has been brought up, and I must say a word on that subject. Judging from the good union of the perinæum which was obtained in the case, also from the fact that I know the doctor to be a firm believer in antiseptic obstetric practice, I am confident that nothing was left out in that part of the treatment. I desire, however, to recall the well-known fact, that septicæmia cannot always be avoided, nor arrested when it occurs in obstetric practice, by any means at our command. In cases in which contusions of the tissues causes hæmorrhage and decomposition, deep suppuration may occur and cause septicæmia, in spite of all the antiseptic douches and washes that can be employed. That explains the clinical fact, that washing out the uterus will lower the temperature, and relieve the septicæmia in one case and not in another.

All this reminds us of that which we all very well know, but sometimes in this age occasionally appear to forget, viz., that to guard against injuring tissues is a surer preventative of septicæmia than antiseptics.

Dr. P. L. Schenck.—There is one question I would like to ask with regard to the case, that is, as to the necessity of attempting delivery at the time indicated. I have a theory confirmed by long experience that we should not attempt delivery (unless there is some urgent necessity) until the os is dilated or plainly dilatable. In practice with my assistants in years gone by I have always reprobated the desire to apply the forceps until dilatation is complete. The uterus being supplied principally by the sympathetic system of nerves and but sparsely by the cerebro-spinal, we know that the first stage of labor can go on almost indefinitely without physical exhaustion of the patient, in which respect it differs greatly from the second stage. It seems to me, as I have heard the case read, that it would have been better to have delayed interference until the os was dilated or dilatable. I believe that a full dose of morphia injections of hot water and time, would have accomplished all that was necessary in that direction.

Dr. Hall.—I will say to begin with that I did use hot water injections in the vagina and the rectum. I would also say that it is a practice with me to give a large antiseptic injection after any labor as soon as the delivery of the placenta is accomplished. With regard to the os, it was dilatable to begin with. The labor began at one o'clock A. M. on Saturday, and it was six o'clock P. M. before the forcible delivery was decided upon. The os instead of becoming more dilatable was becoming less so. The liquor amnii had all escaped, the child was suffering from the long pressure, the parts were dry and feverish, the patient was not a strong woman; she was decidedly of the opposite order; her strength was very rapidly becoming exhausted.

I would like to say I think I performed the operation of craniotomy without doing damage to the tissues.

The excoriations were caused by the Tarnier's forceps.

THE BROOKLYN MEDICAL JOURNAL.

EDITORIAL.

AFTER THE VACATION.

The absence of much general sickness in this city during the summer months has given way to a rather considerable activity among medical men now that their clients have returned from their vacation. The vacation period has grown up into a division of the year not recognized twenty-five years ago, but with quite a sharp outline in the last decade. The social life of the people of this country underwent a marked change, following on after the changed relations provoked by the civil war. The people began to handle more money, and great fortunes became frequent, so that the seaside and the mountain were bivouacked with splendid caravanseries, whereat superfluous money could be lavishly expended on the plea of health and needed recreation. Following in the trail of fashion have sprung up the multitudes of every kind of lodging place to suit the humbler resources of all kinds of people whose annual expenses are restricted by limited incomes, and yet who feel bound by the same necessities to search for renewed health in freedom from home care and in unusual recreations. The argument for rest seems irresistible, and yet this modern method of securing it through the medium of the suburban boarding-house is assuredly an innovation on the earlier customs. It is quite a serious matter, suggestive of profound social problems, whether this summer hegira is all that fancy has painted it, and whether, on the whole, this flight from cobblestones and brick walls is fraught with a gain proportionate to the social disturbance and sacrifice that are its inevitable accompaniments.

It can hardly be denied that the experiences of medical men in these cities would agree in the general statement that a very fair share of the illness their activities are called upon to combat in the autumn, are directly traceable to conditions produced by the irregularities and unaccustomed modes of living incident to the summering from home. These are climatic and dietetic to a large extent, of course; but besides these, they result from the less tangible but fairly appreciable disturbances, the sequence of more or less prolonged residence amid unfamiliar surroundings and the endurance of deprivations from home comforts. Nothing is better recognized, in the conditions of change of residence, than the necessity of being acclimated, and this process is not usually a short one. It is familiar enough, likewise, that in the ordinary summer retreat a fair opportunity must be given before recuperation has a chance to assert itself. The ends aimed at in the summer vacation are change of air and food and freedom from the care of providing. If the change of air is not a suitable change, visitors do not, of course, feel benefited by the change. Outside of the elaborate *menus* of the great hotels there is a lamentable amount of distress and annoyance endured from insufficient variety of food, and the peculiarities of its service, and, notably, the paucity of fruits and vegetables in the country when the city market-stalls are laden with everything of the sort. The novelty of new situations inspires to unusual effort in climbing and rowing, and sports and late hours and social excesses and unexpected expenses, which are all foreign to the participant, and which all unite to give something else than a tone of pleasantry to the statement that people come home from their vacations to get rested.

There are advantages in rest and change and release from routine; but as fashion has woven its net, and the followers thereof have become enmeshed in its toils, there is occupation for the medical man to extricate the victims. The summer disruption of families, and the various penances they have endured in multiform deprivations, are a fruitful source of occupation to the physician. What is in its season, good and healthful, has become so tangled up in excess and discomfort as to be full of evil. The theory of a summer vacation has warped many, if not the most, away from the sensible theory of living, that rest and freedom from care and fresh air and variety of food, are possible and not at all inconsistent with proper attention to duty the whole year through. An occasional jaunt, an evening at cribbage, the monotony of needle and broom broken by a social call, and the interjection of some mild excess that will give the tint of variety to the hum-drum, are medicaments that may yet gain admission to the revised pharmacopœia. If the incessant drive may find occasional halting stations to bait and stretch the muscles, life may not only be more serene but more effective. The tortoise came in ahead of the hare.

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"C. O. D."

There is frequently some show of reason in a physician being mulcted in the whole or part of his bill for some protracted service. The people who owe cannot pay. With them it is a financial impossibility. Sickness comes unexpectedly and is prolonged, involving unusual expenses, perhaps the outlay for a burial, and the aggregate is a sum far beyond any amount of money their income ever can collect beyond the necessities of family life. Such cases, and they are numerous enough, have always been recognized and such bills are invariably modified or passed to the account of profit and loss. A very small portion of the community, wherever salaries and day wages are the income, ever sees a sum laid by that would be equivalent to a physician's attendance on a fortnight's sickness. Comparatively few people put aside any money. Most need, for ordinary purposes all the money they ever earn. Food and clothing general charity will supply to the needy. There is no trouble to find physicians to assuage physical suffering with the most ungrudging bestowal. All must have their chance for ordinary comforts, and physicians are always ready to make the broadest allowance for serious demands of unexpected trouble.

But the meanest and most intolerable swindle to which physicians are so frequently subjected is the delay or refusal of payment for services rendered in confinement. The care and skill exercised and the responsibility undergone in such attendance are rarely fully compensated in money. In general these are the most poorly paid for of all medical services. Very few physicians are so constituted as to really enjoy this class of practice. The most conscientious service is rendered under the protest of the most utter distaste for the duty, and so the delay or neglect of payment for this service is peculiarly aggravating. There is here no allowance or apology to be made for the unexpected. Beyond doubt it is a sequence of malice aforethought, and even where risk is taken with unexpected results, the consequences are to be laid at the door of the offender and are a debt of honor that must be met. The cases are not infrequent where a man would consider himself much abused if his wife should die for want of proper attention at her confinement, who would never consider it a duty to provide in advance for such competent attendance.

And this preparation in advance is the seat of the difficulty. The sum needed for payment is so rarely laid by. As before stated, very few people ever see a sum of money beyond the dribbling payments for temporary needs. And, besides, nothing is usually harder than to pay for what the sailors call "dead horse," *i. e.*, meeting overdue obligations, when the present is making demands for every cent likely to come into the home pocket-book. It is, on the contrary, much easier to provide for a future contingency by the aggregate of small savings, and this bit of political economy is a suggestion that physicians, the young as well as the older, may use to their advantage and comfort. The confinement is looked for at a definite time, a physician is engaged for that particular emergency. It is in the power of all but the poorest of the poor to provide, in the period of three-fourths of a year, a sum of money that could be promptly paid at the time of delivery. Most of these cases are in the nature of contract for a fixed sum, and it would work no hardship, but, on the contrary, promote a better feeling, if it was understood that the goods were to be paid for C. O. D. Of course, a failure to fulfil this part of the contract could not follow the ordinary course of commercial transaction in the return of the goods, even though the customer, having had the advantage of the shopping tour, might be willing thus to settle the obligation. The co-operative associations which employ contract physicians (who, by the way, are trespassing on decent ethics,) guarantee attendance on confinement cases for five dollars. But, whether five dollars or twenty-five, there would be fewer children growing up to man and womanhood, mortgaged to the doctor for their full value, if their more or less shiftless progenitors had by a little economy and foresight arranged to pay for them "Cash on Delivery."

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OBITUARY.

JOHN N. FREEMAN, M.D.

The subject of this sketch was born in LaGrange, Ohio, in the year 1836, the child of a Baptist minister, who being numbered among those who were struggling pioneers of the West, could ill afford more than the bare necessities of life to the young and growing family about him. This meant early self-dependence, a situation which was promptly accepted and so manfully carried, that at the age of seventeen we find him battling with the world while at the same time he was gaining his own education.

Naturally fond of teaching, he soon found employment and displayed such aptitude, that it is not unlikely he would have obtained great prominence as an instructor, had not his taste for medicine led him in other channels. Ten years of faithful devotion to this work secured the means for higher education, and he came to New York to obtain it. He was graduated from the medical department of the University of N. Y., in the year 1857, after which he spent four years in practice at the West, and then went to London to walk the hospitals and study there. Returning in July, 1862, he at once responded to the call of his country, and with the commission of Assistant Surgeon, went to the front with the famous Duryea's Zouaves. When this regiment was mustered out, he attached himself as full surgeon to the 106th Volunteers of N. Y., and continued on to the close of the war. He passed through many of the hardest battles unharmed, and was honorably discharged July, 1865. His home in our midst dates from the year 1869, and coming, as he did, an entire stranger, the record of these past nineteen years is certainly indicative of great activity and deep purpose "crowned with worthy achievements."

As a family physician he was greatly beloved, and in this passage of years he grappled many hearts to his with hooks of steel. As surgeon in general practice, and on the staff of St. John's Hospital, his thoroughness and skill were quickly recognized, but the field where his tastes led him and where he was *facile princeps* was gynecology. The same preciseness and fidelity which he evinced doubtless as an instructor at the age of seventeen, and which made him so successful then, came in full play when, with knife in hand, he had some delicate task in this department of surgery before him. With the utmost thoroughness and minuteness of detail he gave his patient every chance that modern antisepsis recommends, thus insuring in a large proportion of cases the most gratifying results. As an electrician he was also prominent, and doubtless had his life been prolonged, his connection with electrolysis in gynecology would have won for him a world-wide reputation. Here it is but just to say that to him belongs in great degree credit not of originating, but of insisting upon certain methods in the treatment of uterine fibroids.

The molecular changes that take place at the negative pole and commence the process of disintegration in the morbid growth, imply the necessity of that pole being in the diseased part, not simply adjacent. Using what is now known at Tiemann's as the Freeman needle, well insulated down to three-quarters of an inch of the point, the Doctor would enter the tumor according to its position, either through the abdominal wall or the uterine wall or per vaginam at the cul de sac, taking care in each instance that the exposed portion of the needle was fully within the growth, thus avoiding the danger of inflammation along its track. The positive pole was generally connected with a large moist flat sponge externally over the uterus. His sittings were never longer than thirty minutes, and he rarely used more than 200 milliampères. This he modified in later years, using lighter current and fewer sittings, having learned that once the process of molecular change was set up, nature took up the work and ultimately completed the absorption of the morbid tissue.

As compared with other methods, while we know there are distinguished men who advocate them, his brilliant results prove the correctness of his views. Certainly he avoided what has been so often seen as a sequence to the presence of the negative electrode in the cavity of the uterus, viz., prolonged hemorrhage.

An interesting statement of a few of his early cases will be found in *N. Y. Medical Journal*, March 7, 1885.

A word more and the record is written. The thorough conscientious successful surgeon was also the man of noble parts and generous nature. Beloved and trusted in his church relations, he was a pillar of strength to his pastor and an example of Christian fidelity to all who came within the sphere of his influence. The profession certainly are bereaved and the world suffers loss irreparable when such as he fall by the wayside.

Dr. Freeman was on a Western trip for recreation when illness overtook him at Indianapolis and only permitted his further progress as far as Omaha, where typhoid symptoms appeared and terminated his life, August 18, 1888. He was buried from the Hanson Place Baptist Church, August 23d, the staff of St. John's Hospital acting as pall bearers, the Grant Post of G. A. R., of which he was a member, doing the military honors at the grave in Greenwood.

WILLIAM M. THALLON, M. D.

By the death of Dr. Wm. M. Thallon the Brooklyn profession loses one of the most brilliant and promising of its younger members. At the early age of thirty, it cuts short a career which bade fair to place him in the front rank of medical men in this city. His great natural abilities had been most carefully trained and cultivated by study and travel. An accomplished linguist and something of a cosmopolitan, his personality was exceedingly attractive, and won for him many warm friends and clients. An honorable ambition which caused him to labor too strenuously in his chosen profession, was doubtless partly responsible for the conditions which rendered him unable to outlast the course of the typhic infection which began two weeks before his death.

Dr. Thallon was graduated from the College of Physicians and Surgeons in 1880, and thereafter served a term as Interne in the Brooklyn Hospital, entering shortly into private practice. Among others, he was a member of this Society, of the Brooklyn Pathological Society, and was Secretary of the Brooklyn Surgical Society. He was also Assistant Surgeon to the Methodist Episcopal Hospital, and to this institution he rendered much valuable service.

He leaves a wife and three children, to whom we beg to tender our deepest sympathy in the great and irreparable loss which they have sustained.

PROCEEDINGS OF SOCIETIES.

THE MEDICAL SOCIETY OF THE COUNTY OF KINGS.

A regular monthly meeting of the Medical Society of the County of Kings was held at the rooms of the Society, No. 356 Bridge Street, Brooklyn, on September 18, 1888

The meeting was called to order at 8.30 P. M,, with Dr. Wallace in the chair, Dr. Hutchinson, Secretary. There were about fifty members present.

The minutes of the last meeting were read.

Dr. Bartley.—In the motion in regard to those two members of the Kings County Board of Pharmacy, I remember making the motion; and the wording is not quite complete, that they do continue in office until the next annual meeting, and that then an election be held for these two. I suppose that may be implied in the language; but that was the intention.

The President.—It can be so altered.

The minutes as so altered were approved and adopted.

The Council recommend that the following gentlemen be elected to membership: Drs. Reuben Jeffrey, Jr., and J. W. L. Roby; and also recommend that the proposition for membership of Dr. J. H. Marshall be laid upon the table.

The following doctors were proposed for membership: B. T. Welsh, 14 Third Avenue, Long Island College Hospital, 1884; proposed by J. A. McCorkle, M.D., seconded by Dr. W. M. Hutchinson.

A. F. Carroll, 97 Park Avenue, Long Island College Hospital, 1887; proposed by Dr. J. A. McCorkle, seconded by Dr. W. M. Hutchinson.

Henry Conkling, 143 Remsen Street, Long Island College Hospital, 1886; proposed by Dr. Francis H. Stuart, seconded by Dr. W. M. Hutchinson.

James Downie, 1008 Halsey Street, Faculty of Physicians and Surgeons, Glasgow, Scotland, 1888; proposed by Dr. A. J. C. Skene, seconded by Dr. Hutchinson.

SCIENTIFIC BUSINESS.

The first paper on the programme was "Some remarks upon the Dietetics of Childhood," by Dr. E. H. Bartley.

Dr. Bartley stated that a more correct title of this paper is probably "Some remarks upon some errors in the diet of children, and their effects."

This paper was discussed by Drs. Thwing, Walker, McCorkle, Hopkins, and Bartley.

The second paper of the evening by Dr. E. P. Thwing, entitled "Euthanasia in Articulo-mortis," was then read.

Discussed by Drs. Burge, Bartley, Hopkins, Walker, Otterson, and Thwing.

NEW BUSINESS.

Dr. HUNT.—I see by the minutes of the last meeting that the appointments of the members to the Board of Pharmacy as made were made for the remainder of this year. As I understand it, that was done under the supposition that the members of the Board of Pharmacy were officers of this Society, and as officers of this Society they could only be elected at the annual meeting. That is not the fact. We are officers of the County, and it is the privilege of this Society to elect two members. Our election is governed by a State law, which specifies how and when we should be elected. That law says that the Medical Society of the County of Kings shall elect two members of that Board for a term of three years—tri-annually. The old members of the Board shall hold over until the election shall take place. That election shall be made within three months of the time of the vacancy. They have always been elected heretofore in June. Having been elected, decided by competent authority, illegally, we have not been able to qualify at the County Clerk's Office. We are now simply in the position of holding over until our successors are legally elected, and it remains with the Society either to legally elect us for three years or to elect some one in our places.

The PRESIDENT.—What is the pleasure of the Society?

Dr. MCCORKLE.—In order to avoid the difficulties, perhaps we can facilitate matters. I will make a motion that the present incumbents be elected to serve for the forthcoming three years.

Motion seconded and carried.

The PRESIDENT.—Since our last meeting I regret to inform the Society that Dr. Freeman has passed away. I will appoint as an Obituary Committee Doctors Alexander Hutchins and Arnold Catlin.

There being no further business before the Society, on motion the meeting adjourned.

W. M. HUTCHINSON, M.D.,
Secretary.

PROGRESS IN MEDICINE.

DISEASES OF THE SKIN.

BY SAMUEL SHERWELL, M.D.,

Clinical Professor of Dermatology, Long Island College Hospital; Attending Physician Brooklyn Hospital; Surgeon to Skin and Throat Department, Brooklyn Eye and Ear Hospital.

G. Behrend (Berlin. Therapeut. Monatshft., No. 3, 1888,) gives the following as some of his formulæ for use of anthrarobin, which it will be remembered he uses for same indications, and as substitute for chrysarobin :

℞	Anthrarobin. - - -	20.0
	Ol. Olivæ,	
	Lanolin, - - -	aa 40.0

℞	Anthrarobin,	10.	or	aa 20.
	Ol. Olivæ, -	15.	"	
	Axung. Porci,	75.	"	—60-

℞	Anthrarobin,	10.
	Glycerin,	80.
	et salve calefac.	

℞	Anthrarobin,	10.
	Soda Bibroat,	8.
	Aq. Dist.,	80.

or

℞	Anthrarobin,	20.
	Soda Biborat,	35.
	Glyc.	aa 90.
	Spts. dist.,	

He says the foregoing preparations can be used daily for weeks without irritating the skin ; that truly its action is weaker than that of chrysophanic acid, and needs to be used for longer time. He says, however, it is stronger than pyrogallic acid in same percentage (! !), and is preferable because it avoids the risks of poisonous effects of last. Its action is assisted by previous washing of the surface with some strongly alkaline soap. It has been used with good effect by him in some forms of eczema, herpes tonsurans, pityriasis vessicolor, and erythrasma, sycosis of the bearded face, and in psoriasis.

(The few dermatologists in New York who have used it conclude that it is nothing more than a weakened and somewhat modified chrysarobin, S. S.)

Jonathan ***Hutchinson.***—London Lancet, Jan. 7, 14, 21, 1888. "Harvian Lectures on Lupus."

No article that Dr. Hutchinson has ever written can be deemed unworthy of attention ; but as to this series of lectures, descriptive of the anatomy, pathology, and etiology of lupus in its different forms, nothing short of pages of comment would do justice to their boldness (not to say rashness) and originality.

Lupus, as generally met with, is ordinarily a well and easily recognizable disease, both as to vulgar and erythematous forms ; but the Professor has so mixed up the subject, as bearing on, or complicating, almost all forms of skin disease characterized by exudation of small-celled elements, that it will be safe to leave him to the general conclusions of those interested in dermatology. Still, while believing some of his points erroneous, we cannot but be astonished at the amount of work, observation, and clinical study so manifest in his writing, and consequently can commend it to the attention of those interested in the subject.

Hans Hebra.—Vienna, Wien. Med. Wochenschrift, No. 23, 1887.

In account of Proceedings of Vienna Med. Society given on that date, Prof. Hebra is credited with exhibition of a child eight days old suffering from "moderate ichthyosis."

M. LeRoy de Mericourt and Others.—Gazette des Hopitaux, Nos. 59, 62, 71, 74, 1888. "Discussion on Lepra, more particularly in regard to its power of Contagion, and as to manner thereof."

This discussion was led up to by a paper read by M. Besnier, Oct. 14, 1887, in which he strongly maintained the bacterial origin of leprosy, and also its possibility and power of contagion and innoculation by bacteria.

M. LeRoy de Méricourt (antibacteriologist) replies (in No. 59), and in some degree ridicules the bacterial theory of cause and contagion; in this he is supported by Hardy (No. 74), and they give a large number of authorities, Norwegian, English, French, Italian, etc., as supporting them; but the majority of the French dermatologues, to wit, Vidal, Leloir, Cornil, etc., are in favor of Besnier's conclusions.

An interesting discussion, but one too long to give abstract of, even the most succinct: It is sufficient to say, that as in a recent discussion held at the New York Academy of Medicine, the verdict is still "non proven." (The weight of seeming evidence as between contagion and non possibility of contagion is so evenly balanced, that until some further proof comes out it seems no one can decide; the most eminent men being on either and both ends of the scale.—S. S.)

M. Rechus.—Gazette des Hopitaux, No. 74, 1888. "Leucoplasia and Cancroid of the Mucous Membranes, Buccal and Vaginal."

The author speaks of this disease as known under the synonyms of leucoplasie buccali, psoriasis buc., ichthyosis buc., chronic epithelial stomatitis, etc., he prefers first title.

He gives a history of six cases, five buccal, one vaginal, in all of which he operated by excision with good, it might be said entirely successful results in five cases. Some of them were beginning to have a decidedly malignant appearance, if not character. This latter was proven by microscopical examination in two or three cases. He recommends, then, early ablation in marked cases of this variety of lesion, and says that although many cases go on for many years without showing malignant degeneration, still they must and always do so degenerate at last. He cites one case in which the patient had a marked history for forty years, but in that case true epithelial degeneration had come on ultimately.

Edwin B. Muskett.—Lancet, February 11, 1888. "Specific Treatment of Anthrax and Anthracæmia and of Carbuncle."

The author, who does not give his address, but who appears from the context to be an inhabitant of the cattle and sheep-raising districts of South Africa, gives from his experience a list of fifty cases of anthrax (pustula maligna) successfully treated. His experience covers the space of fifteen years.

The disease occurred for the most part in the persons of sheep drovers, and the treatment was uniformly successful. He gives also a series of four cases of carbuncle, in which the same remedies were successful. He claims that carbuncle is a rare disease in that part of the world, but that he used the remedy on account of the analogy of the affections. He certainly gives a good and seemingly typical description of his cases of malignant pustule.

His routine is the following: Powdered ipecacuhana mixed with water to the consistency of cream, applied on and around the affected spot as far as the inflammation extends, and internally grains v of ipecac, and morph. sulph., grains $\frac{1}{8}$, every four hours; it is well, he thinks, often for the external application of ipecac, to be preceded by a mild vesicant.

He does not like the mixture to be made with glycerine, his only partial failure of success having occurred where this was used instead of water; he thought this might have been due to the exosmosis thereby induced.

He further says that a carbuncle has sometimes been described as a large furuncle; but thinks this must be an error, as he has not found this treatment of much effect in furunculosis. He objects decidedly to the application of warm poultices in malignant pustule and carbuncle.

(It remains to be seen whether this writer's observations and conclusions are to be relied on; they certainly are very important, if true. In medicine as in other things, it is so important to know "who is behind the words."—S. S.)

Bohn.—Konigsberg, Deutsch. Med. Wochenschft., No. 18, 1888. "On Measles in Adults."

The author, in a sufficiently long paper, expresses his doubts as to whether adult age gives the relative immunity from the measles infection that it does in very young children. He gives a table from a total number of 800 cases of measles that have come under his observation, showing 34 cases in adults:

Age, 15 to 20,	13
" 20 to 30,	11
" 30 to 40,	6
" 40 to 50,	3
" 55,	1
	34

He thinks this percentage is a fair proof of non-immunity of adult life, owing to the great previous exposure in infant and childish life.

For health authorities and statisticians his article is otherwise interesting.

A. R. Robinson.—New York. Monatshft. pract. Dermatol. "Pathology and Therepy of Alopecia Areata," No. 9–16, 1888.

This paper was read before the dermatological section of the International Congress at Washington, 1887, and is published, as will be noted, in Unna's Journal, Hamburg.

The article is long and seemingly exhaustive on this much vexed subject, which he deals with in the first part more especially as to its anatomo-pathological relations.

He decries and denies the nervous origin to which it is generally attributed, and says it is due fundamentally to parasitic (bacterial) disease of the lymph spaces or channels, and has primarily nothing to do with the hair or its root, but that these parasitic organisms cause fibrin coagulation and infiltration in the derma, which leads to circumscribed loss of hair from non-nutrition.

He claims to have demonstrated this by his curing cases by use of antiparasitic remedies, also by his descriptions and woodcuts from microscopical preparations, as well as by his clinical histories (all of which while conceding the great reputation of the author as pathologue and histologist, and his entire honesty as well, is not believed in by ourselves, we still believing the neurotic origin as the most probable, and in better consonance with well-known clinical facts.—S. S.)

Robertson.—British Medical Journal, June 2, 1888. "Sebaceous Tumors."

The author recommends that the following treatment be adopted when patients object to the usual mode of treatment, and claims marked success for the method: "With a cataract or fine long-bladed knife, puncture the cyst, and gently squeeze out the contents; then introduce a very small piece of the nitrate of silver. On the the following day [or somewhat later—S. S.], by means of a pair of forceps, the capsule of the cyst can be withdrawn just like the shell of a bean, without any portion being left adherent. In no case has there been any return of the growth or any ill effects following the operation."

(A similar procedure was recommended some time since by a French writer, Vidal we think. He recommended, however, the introtroduction of the end of a match, etc., dipped in sat. sol. of chromic acid in place of nitrate of silver; the after procedure and effects similar.—S. S.)

Georg Mueller.—Dresden, Monatschft. f. pract. Dermatol, No. 15, 1888. "On Skin Diseases of Birds."

The author asserts, on his own and the authority of Zürn, Rivolta, Silvestrini, Megnin, Nörner, Ehlers, etc., etc., that the skin diseases of birds are uniformly, or almost so, "parasitic" in origin.

The vegetable parasites, according to him, that affect them would seem to be fewer than in man: Favus and an analogue to the Trichophyton being the only ones. The animal parasites, on the contrary, are numerous, some of them bearing such cheerful and easily remembered names as "harpirhyncus nidulans," common to doves, sparrows, finches, macaws, parrots, etc.; the "hypodectes columbarium," "epidermoptes bifurcatis," "syringophilus bipectinatus," etc., etc., etc.

It is pleasant to know that the therapeutic armamenta is not so varied or so difficult of remembrance. It would seem that careful washing of the cages with strong lyes, painting them in some cases also with the tarry volatile oils or carbolic acid solutions, and powdering the bird with powder of the pyrethrum, and also—which is often best, he says—washing the plumage, etc., with water containing a little oil of anise, is all that is needed to bring about a good result.

Prof. J. Caspary.—Konigsberg, Vierteljahshft. f. Dermat. u. Syph. II., Heft, 1880. "On Licten Ruber."

The author in this short article gives voice to an earnest wish for some sort of settlement, or consensus of opinion by authority, as to the identity or non-identity of the diseases known distinctively as "Licten Ruber" and "Licten Planus." He hopes it will be brought before coming deliberations of dermatologists.

(It is generally held in this country as in England, etc., that the discases are separate and individual. Such is decidedly our opinion.

They have a different clinical history, and a different termination. It is interesting to note in this connection that in a congress at Washington, of very near date, two or three papers are promised bearing on this very subject, which will doubtless provoke much interesting discussion and possibly settle the subject, as far at least as dermatologists of this country are concerned.—S. S.)

SYPHILIS.

M. A. Morel Lavellec.—Paris, Gazette des Hopitaux, No. 72, 1888. "On the Abortive Treatment of Syphilis."

This much vexed question of the present among syphilographers has in above named journal, and on date annexed, been handled by the author in a very terse and vigorous manner. He takes the negative side of the question, and gives his conclusions under three major captions, and they in turn are numerously divided and subdivided after the manner of the modern journalistic writer.

He denies formally that any case has been absolutely proven to have been cured by the operations as recommended by Auspitz and others, certainly (to be more definite) when the "*partner contaminateur*" has been proven to have had the "*verole.*"

He denies the possibility of attenuating the virus by removal of affected glands, division or exsection of lymphatic vessels or chains of glands, and by injections of mercury, iodine, etc., into neighboring parts, unless, indeed, in sufficient quantity to affect the general system.

He claims that most of the cases cited as successful have been in the hands of, and under the observation of unicists in syphilography, and that insufficient time has been given by them for registration of appearances of consecutive acidents.

That there remains in all cases doubt:

a. Whether the patient is cleared by anterior history.

b. Whether the lesion is or is not only a simple specific ulcer (chancroid).

c. Whether the lesion is not herpetic pure and simple, or herpes on syphilitic ground.

He quotes Fournier, Leloir, Diday, Mauriac, Lindwurm, Rhinecker, in support of his position in one direction, as giving instances of extreme length of incubation before appearance of the primary sore.

Edourd Desmet.—La Clinique, November 10, 1887. "On Syphilis of Glassblowers."

The writer, who has evidently had considerable experience in the large glass works of Belgium, etc., lays great stress on the importance of early recognition and prompt treatment of this class of operatives, in view of the iminent danger of contagion of assistant to workman, and *vice versa*, and from them to other employees in the same shop or factory. He thinks that employers as well as employees ought to be mutually concerned and helpful.

For prophylactic or preventive measures the following rules have been given out, but are for obvious reasons difficult and troublesome to follow, viz.:

(1) The furnishing of removable mouthpieces to the blowing-tubes, each workman to have one.

(2) A regular and frequent personal examination by the man himself, and also by competent medical man.

Now, as to first rule it so hinders and delays work that it is always eventually given up as neither suiting workmen or employers. The only practical good is in the second rule, which can and should be carried out most thoroughly, minutely, and effectually, and not alone as regards the mouth, but all parts of the body, and more especially the sexual organs.

CLINICAL CASES.

Presented before the Brooklyn Surgical Society, June 7, 1887.

BY E. A. LEWIS, M.D.; H. W. RAND, M.D.; FRANK W. ROCKWELL, M.D.; WM. M. THALLON, M D.

CASE OF VARICOCELE.

E. A. LEWIS, M.D.

W——, age 11, healthy boy. Has worn suspensory bandage for varicocele on left side for over a year. Veins have continued to enlarge in spite of the support of the bandage. Presented to Surgical Society for advice as to best procedure.

Examination shows veins in scrotum on left side enormously distended, the enlargement evidently extending into the canal or even above it. Testicle on this side somewhat atrophied. Some evidence of varicocele beginning on the right side.

Unanimous opinion in favor of opening the scrotum and ligating the veins.

On June 13th, this was done with all antiseptic precautions. Artery and vas carefully separated. Veins tied in two places and divided between the ligatures. Ligatures left in scrotum closed. Patient did very well. About one-third of an inch of incision did not heal by first intention, and discharged a little pus. There was considerable induration extending into the inguinal canal. This has not yet (July 6th) entirely disappeared. Incidentally there was, for a few days, quite a marked urethritis, but without inflammatory symptoms. The cure seems to be complete. Patient is directed to avoid active exercise and still wear suspensory for a while.

CASE OF COMPOUND COMMINUTED FRACTURES OF THE FACE.

BY H. W. RAND, M.D.

C. M., age 36, entered the Long Island College Hospital, March 8th. He had fallen ten feet, striking the pavement with the right side of his face. On examination, it was found that both superior maxillary, the right malar, right temporal, right inferior turbinated, vomer, both palate, and both nasal bones were involved in the injury, and possibly others. The fractures of the right superior maxillary and right malar bones were compound and very much comminuated. A fracture extended completely across the upper jaw, just above the hard palate, the separated portion of the jaw dropping downwards and backwards about one-third of an inch in each direction. Posteriorly, the right superior maxillary was bent inwards, so that the right upper molar teeth were carried a half inch to the left of the right lower molars when the upper and lower molars were in their normal position in reference to each other. The nasal bones were comminuted and carried to the left, and the right nasal cavity occluded. The fracture of the right zygomatic arch was compound and comminuted, and the fragments were driven into the underlying soft parts. The fractures involved the glenoid fossa, and probably extended into the auditory canal. There was hæmorrhage from the right ear, and loss of hearing on that side. The right eye was carried forwards upon the cheek and downwards for three-quarters of an inch. This displacement was probably due to depression of the floor of the orbit. The soft parts were much contused and lacerated, and the right side of the lower jaw dislocated. This dislocation was easily reduced, but it was difficult to retain the condyle in place.

During treatment considerable difficulty was experienced in retaining the fragments of the uper jaw in position, and to accomplish this various expedients were resorted to.

In spite of the extent of the injury, the man, as you see, has made a fairly good recovery, although the motion of the lower jaw is only about one-half of what it formerly was; but it is still improving.

CASE OF EXCISION OF CALCANEUM.

FRANK W. ROCKWELL, M.D.

The patient, a girl of seven, with no tubercular history so far as could be ascertained in her immediate family, but still of strumous diathesis herself, had been suffering since the spring of 1886 with an ill-defined swelling and great pain in the region of the left heel. An abscess finally formed, and was opened by a physician who saw her, but with no relief to the pain, and but little to the constitutional symptoms which were marked.

The fistulous opening which succeeded the abscess kept discharging, and the patient steadily deteriorated until May 15th, '87, when she was seen by Dr. C. C. Henry, who made an incision over the external aspect of the bone and evacuated pus and granular debris, and through this opening gouged out a carious cavity in the bone. As the operation was followed by but slight relief, another attempt was made on May 24th by introducing the gouge through the heel, but with no better result.

June 15th, 1887.—In connection with Dr. Henry, she was examined under an anæsthetic by Dr. Rockwell, who found extensive tubercular ostitis, and advised excision of the entire bone and gouging away of any diseased spots in the neighboring structures. As the skin of the proposed flaps was blue and undermined, the ordinary plan of operation was not feasible, and the bone was accordingly approached by an incision running from the external malleolus under the sole of the foot and up to the inner malleolus, as in Syme's amputation. This flap was turned back, the periosteum stripped off as completely as possible, and the bone separated from its attachments. The wound was thoroughly irrigated with the potassio-mercuric iodide, 1–4,000, catgut sutures and a rubber drain being introduced. A layer of paper-wool, over which a plaster bandage was applied, completed the dressing. The operation was followed by sharp febrile reaction; and on the third day the dressings were changed, as the flow of sweet, clear serum was so abundant as to soak them through. A fenestrum was cut in the plaster bandage over each malleolus, and the plantar portion of dressing taken away. The wound was healed throughout with exception of orifice of drainage. A strip of tin was applied over dorsum of foot and leg to reinforce the cast, and a fresh dressing made. The drainage was kept up for two or three weeks, as discharge continued free. At the end of this time the drains were removed, and convalescence proceeded satisfactorily but slowly under infrequent dressings. A small pocket of pus formed in the heel, toward the end of July, but gave little trouble. Owing to the bad condition of the patient's system, it was not until November 28th that she was finally dismissed as well, though she had been walking about since October. The specimen removed showed extensive disease of the bone and destruction of its cancellous tissue. The patient was exhibited walking without limp when wearing a shoe, but limping very perceptibly on the bare foot.

CASE OF VICARIOUS MENSTRUATION FROM DISPLACEMENT OF THE WOMB.

BY WILLIAM M. THALLON, M.D.

In October, 1886, I was called to see Miss A. C., of American birth, aged 19 years.

She was suffering from profuse loss of blood from the rectum. Her skin and mucous membranes were almost destitute of color; her pulse was between 120 and 130; her eyes were protruding and her thyroid gland enlarged. Her temperature was normal. Her tongue was thickly coated, and she stated that she suffered almost constantly from nausea and vomiting; her bowels were constipated, and she encouraged this tendency in order to escape the excessive pain and often the hæmorrhage that attended an evacuation. The kidneys were irregular in their action, the secretion being at times almost suppressed or the urine voided semi-solid. Constant pain in the back and rectum had worn out her nervous strength, sleep was poor and full of dreams, and altogether she was exquisitely sensitive. She had begun to menstruate at the age of fifteen; she had always had much pain, the flow lasted from four to six days, and was normal in quantity, but very watery in quality. The hæmorrhages from the bowel had occurred for over two years and usually preceded or followed menstruation; sometimes they would occur daily for a week, the quality was variable, but at times amounted to a quart. I verified this subsequently by measurement. As a child she had been very delicate, her family history was bad, her father and three uncles having died of phthisis. The patient was quite unable to go about, and presented a degree of wretchedness pitiable to behold.

On physical examination I found nothing worth recording in heart, lungs or kidneys. The local pelvic conditions were as follows: Protruding from the anus was a mass of hæmorrhoids the size of a hen's egg; in several places they were fissured. I could not examine the rectum any further owing to the pain.

On examining by the vagina, the os was felt closely attached to the anterior vaginal wall; the fundus uteri was felt in the cul-de-sac of Douglass, and I could not move it with my finger. The ovaries I could not make out. Subsequent examination showed that the uterus was retroflexed as well as retroverted, the fundus adherent to the rectal wall and the cervix bound to the anterior vaginal wall by a fibrous submucous band, which I take to be congenital.

Here, then, lay the starting point of this whole group of symptoms, the position of the uterus making constant pressure on the hæmorrhoidal veins and their terminals rupturing under the congestion of menstruation. From this had followed the acute anæmia and continued malnutrition of all the organs.

It seemed to me the first thing to do was to arrest the exhausting hæmorrhages. But this was no easy matter. Two unsuccessful attempts at operation had been made in Philadelphia and abandoned, owing to patient's behaviour under an anæsthetic.

For the first four months the treatment consisted in forced feeding by means of the various baby foods, peptogenized milk, beef peptonoids, etc. The only medicine given was $\frac{1}{200}$ grain hydargyr. bichlor.

and one-half drop liq. arsenici chlor. twice a day. Locally, the hot rectal douche and applications of hydrastis and zinc sulphat. partially controlled the hæmorrhage.

In January, 1887, with the help of my then student, now Dr. M. Marquette, I attempted to operate on the rectum under cocaine anæsthesia. The patient promptly became maniacal from the cocaine absorbed; her pulse was uncountable, and her respiration went up to over forty; I had to spend several hours in resuscitating her. A couple of weeks later I again made the attempt to operate. Dr. Gordon Hall very skilfully administered ether and Dr. Alex. Rae and Dr. Marquette assisted me. I found the hæmorrhoidal mass completely encircling the anus and extending between two and three inches into the rectum, being much more marked on the anterior than the posterior rectal wall. It was completely tied off in segments, up to healthy mucous membrane, eighteen stout silk and numerous catgut ligatures being applied.

The patient rallied remarkably well, the after pain being far less than anticipated. From that day to this she has had but one hæmorrhage and that very scanty in amount. The gain following the arrest of the long continued drain was very great. While under the anæsthetic I had been able to verify my diagnosis of the uterine condition. As soon as she had recovered from the rectal operation I began treatment of the uterine trouble. Systematic tamponing was used and continued for several months. When she went to the country (July, 1887,) she could get about; menstruation though still very painful was much better in quality. She was instructed to use the hot douche and take the knee chest position.

Last fall she resumed treatment. In January (1888) I divided the band between the cervix and anterior vaginal wall under cocaine, in my office, thus: The cervix was pulled backward, putting the band on the stretch; this latter was completely severed by an incision at right angles to the axis of the vagina. The two ends of the incision were then approximated by deep catgut sutures, thus crowding in new tissue between the ends of the divided band and lengthening the attachment of the cervix to the anterior vaginal wall. I also introduced a suitable retroversion pessary.

Finally, on March 6th, 1888, with the help of Dr. H. B. Delatour and my office nurse, the last operation was done. The patient being etherized, the uterus was forcibly lifted from its retroverted and retroflexed into the normal position, the adhesions of fundus to rectal wall being ruptured as suggested by Dr. Van de Warker, of Syracuse. The sound encountered some resistance at the internal os and detected some roughness at the fundus. I therefore introduced a Nott's divulsor, and, after moderately stretching the internal os, I scraped the fundus with a Sims' curette, removing three or four polypoid growths. Patient was then tamponed with oxide of zinc wool and put to bed. She had an afebrile convalescence. At the end of one week the tampon was removed.

She is now wearing a retroversion pessary as a temporary support till the uterine ligaments above can keep the womb in the normal position it now occupies. Her general health is so much improved that her whole appearance has changed. Her pulse, from 130, is down to 80; she eats fairly well, she sleeps well, and the amount of pain is enormously diminished. She is on the highway to permanent recovery. From being a hopeless invalid, she is now supporting herself by her own exertions.

I have presented this case thus fully because I think it shows what apparently hopeless conditions may be relieved if their cause is sought out and dilligently removed. WM. M. THALLON, *Secretary.*

CORRESPONDENCE.

OFFICIAL ORTHŒPY.

Editor of the BROOKLYN MEDICAL JOURNAL.

DEAR SIR :—In the August number of the JOURNAL is an article entitled "Official Orthœpy." In reply I wish to say, that of the fifteen members of the Board of Education appointed on July 1st by Mayor Chapin, ten were appointed by Mayor Low, and several of these ten were twice appointed by him. Of the five new members appointed by Mayor Chapin, two are lawyers who began life as teachers; one is a manufacturer, who is generally recognized as a lettered gentleman; one is a lawyer representing the Swedish element of our population; and one is a physician.

The following are the names and professions of the fifteen members:

Albert C. Aubery, lawyer and ex-teacher; *Chas. A. Buttrick, member of N. Y. Stock Exchange; John C. Creevey, lawyer and ex-teacher; * Horace E. Dresser, wholesale merchant; Wm. P. Ferguson, manufacturer; * John Flynn, bookkeeper; * William Harkness, decorator; * H. P. Halsey, author; * John Harrigan, physician; * Jos. C. Hendrix, journalist; Arthur R. Jarrett, physician; * John McNamee, civil engineer and contractor; * Edward Rowe, merchant; J. Edw. Swanstrom, lawyer; * P. A. White, druggist.

As to the appropriateness of the editorial, the readers of the JOURNAL will please decide for themselves. JOHN HARRIGAN, M.D.,
401 Clinton Street.

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* Appointed by Mayor Low, and re-appointed by Mayor Chapin.

MISCELLANEOUS.

MILK—HOW TO TEST IT, AND HOW TO TAKE CARE OF IT.

Important Information for Grocers and Milk Dealers.

BY E. H. BARTLEY, M.D.,

Late Chief Chemist of the Brooklyn Health Department, for "The Retail Grocers' Advocate." New York City.

INSTRUCTIONS IN TESTING MILK.

Any person who does business, in which the health of the community is at stake, is presumed to possess such a knowledge of the business as to enable him to carry it on without injury to the health of the people.

A druggist, for example, is presumed to know the properties of the drugs he sells, and to conduct his business so that no one will be injured by those drugs.

The physician or dentist is held accountable for the use of reasonable knowledge and skill in the practice of his profession.

The grocer in like manner is held accountable for the exercise of reasonable knowledge and care in dispensing food, so that no injury shall be done by any neglect of precaution or wilful act. The law presumes that a dealer in foods is competent to conduct a safe business, just as truly as a dealer in poisonous drugs. The law does not, however, demand that every grocer shall be an analytical chemist. It simply holds him responsible for the use of reasonable knowledge, care and skill. Among other things, the law holds that a knowledge of the general quality of milk is a necessary qualification for one who proposes to carry on the business of selling this article. It therefore holds him responsible for its quality so far as watering, skimming and the other ordinary adulterations are concerned.

It is therefore very necessary that grocers and milk dealers, as a means of *self-protection*, should inform themselves as to the simpler methods for judging of the quality of a milk.

We shall give only two tests and state those as plainly as possible.

Every one who has handled milk knows that when it is allowed to stand at rest the fat or cream rises to the top. This is because the cream is lighter than the water with which it is mixed when it comes from the cow.

"Skim milk" is therefore heavier than "whole milk;" and the more cream a milk contains the lighter it is. Water is lighter than milk. Water added to milk makes it lighter than pure milk. Cold milk is heavier than warm milk. These are facts to be remembered.

When a solid body is floated on a liquid it sinks deeper in a lighter than in a heavier one.

The lactometer is a glass instrument so made that it floats upright in a liquid, and bears a scale on its stem to mark the depth to which it sinks. The lower it sinks the smaller the figures shown above the milk. The higher it rides, the higher the numbers shown above the milk.

The instrument is so made that it shows the figure 100 in the lightest market milk, but in good milk it shows 105, 110 or 115. Skimming off the cream will make the instrument float higher, while the addition of water, or a very large amount of cream, will make it float lower. The milk of a single cow may occasionally be found so rich in cream that it will not float the instrument up to the 100 mark. This seldom if ever happens in the mixed milk of a dairy. Watering always makes the milk light and the instrument floats low. The laws of the cities of New York and Brooklyn condemn milk that will not float the lactometer so as to show the 100 mark.

When the market milk floats the lactometer below 100, it is pretty good evidence that the milk is especially rich in cream, or has been watered; when it floats it above 120 it is suspicious of skimming. (See cream test below.) Thus far we have said nothing of the temperature of the milk at the time of the test. We have stated above, that cold milk is heavier than warm milk. The temperature of the milk must therefore be known, in order to read the lactometer correctly. The temperature is found by dipping a thermometer into the milk and allowing it to remain for a few minutes. It is best done by stirring the milk with the thermometer for about three or five minutes, and then reading off the temperature while it is still in the milk. The ordinary lactometers are so made that they give the correct test only when the milk is at a temperature of 60 degrees, as shown by the ordinary Fahrenheit thermometer. When milk is colder than this, the lactometer reads too high; when it is warmer it reads too low. It will be seen from this, that it is necessary to warm or cool the milk to the temperature of 60 degrees before testing it.

As this takes time and some trouble, it is more convenient to have a table with which to correct the false reading given at other temperatures, into the true reading. This is especially desirable for those who wish to test the milk frequently, and before sending it out on the route.

Milkmen have frequently asked the writer where such a table could be found, and have asked him to have it printed for their use, at their expense. For this reason I give below the table of corrections to be used as follows:

TABLE FOR CORRECTING THE READINGS OF THE LACTOMETER FOR VARIATIONS OF TEMPERATURE ABOVE OR BELOW 60° F.

Lactometer Readings.	DEGREES OF THERMOMETER (FAHRENHEIT).																			*Lactometer Readings.*
	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	75	
69	64.5	65	65	65.5	66	66	66.5	67	68	68.5	**69**	69.5	70	71	71.5	72.5	73.5	74.5	75	**69**
72	67.5	68	68	69	69.5	69.5	70	71	71-6	72	**72**	73.5	74	75	75.5	76	77	77.5	78	**72**
76	71.5	72	72	72.6	73	73.5	74	74.5	75	75.5	**76**	76.5	77.5	78	78.5	79.5	80.5	81.5	82	**76**
79	74.5	75	75.5	76	76.5	76.5	77	77.5	78	78.5	**79**	80	81	81.5	82.5	83.5	84	85	85.5	**79**
83	78	78.5	79	79	79.5	80	80.5	81	81.5	82	**83**	83.5	84	85	86	86.5	87.5	88	88.5	**83**
86	81	81.5	82	82.5	83	83.5	84	84.5	85	85.5	**86**	87	87.5	88.5	89.5	90	91	92	92.5	**86**
90	84	84.5	85	86	86.5	86.5	87	87.5	88.5	89	**90**	90.5	91.5	92	93	94	94.5	95.5	96	**90**
93	88	88.5	89	89.5	90	90	90.5	91	92	92.5	**93**	94	95	95.5	96	97	98	99	99.5	**93**
96.5	91	91.5	92	92.5	93	93.5	94	94.5	95.5	96	**96.5**	97.5	98.5	99	100	101	102	103	103.5	**96.5**
100	94.5	95	95.5	96	96.5	97	97.5	98	98.5	99	**100**	101	102	103	104	105	106	107	107	**100**
103.5	97.5	98	98.5	99	99.5	100	100.5	101.5	102.5	103	**103.5**	104.5	105.5	106	107	108	109	110	110.5	**103.5**
107	101	101.5	102	102.5	102.5	103.5	104	104.5	105.5	106	**107**	108	109	110	111	112	113	114	114.5	**107**
110.5	103.5	104	105	105.5	106	106.5	107	108	108.5	109.5	**110.5**	111.5	112.5	113.5	114.5	115.5	116.5	117.5	118	**110.5**
114	107	107.5	108	108.5	109	109.5	110.5	111.5	112	113	**114**	115	116	117	118	119	120	121	121.5	**114**
117	110	110.5	111	111.5	112	113	114	114.5	115.5	116.5	**117**	118	119	120	121	122	123.5	124.5	125	**117**
120.5	113	113.5	114	114.5	115	116	117	118	119	119.7	**120.5**	122	123	124	125	126	127	128	128.5	**120.5**

This table is accurate to one-half a degree on the lactometer, and that is as near as the instrument can be read by most persons.

Find the temperature of the milk and the test by the lactometer. Now look for the temperature at the top of the table, and the lactometer test in the first or last column. In the same line with the lactometer figures, under the temperature, is given the true test of the milk at 60 degrees F.

For Example : Suppose the temperature to be 50 degrees, and the lactometer to read 103.5. The true test at 60 degrees F. would be 100. Or, if the temperature is 66 degrees F. and the lactometer shows the 100 mark, the true test is 103. Again, if the lactometer reads 107 and the thermometer 40 degrees F., the reading at 60 F. would be 101. If the lactometer reads 100 while the temperature is 70 degrees F., the true reading would be 105 ; while, if the temperature is 50 degrees, the true test would be 97.

It is not safe to deal in milk which tests just 100. You should always have a little margin.

The lactometer is usually floated in an upright graduated jar called a cream gauge. It is so graduated that each of the small divisions or marks near the top corresponds to one per cent. of cream. Good milk when filled up to the zero mark and allowed to set twenty-four hours, should show not less than ten per cent. of cream. Most milks will give fifteen per cent. If the cream reaches over twenty per cent. it may make the lactometer read low, and sometimes below 100.

A watered milk, being thinner than pure milk, separates its cream more easily than the latter; hence, a watered milk will frequently show a larger amount of cream in the first few hours than pure milk. This sometimes deceives the customers, but it will not deceive the inspector or the careful milkman. If the milk is mixed with its own volume of water, the test can be made in ten or twelve hours, but the per cent. of cream must be doubled in this case to give the true percentage.

A very high test with less than 10 per cent. of cream indicates skimming.

A low test with less than 20 per cent. of cream indicates watering.

Salt or sugar are easily detected by the taste.

THE CARE OF MILK INTENDED FOR THE MARKET.

There is perhaps no one article of food so necessary to the perpetuation of the human race, in this climate, as milk ; and no one article that does so much damage to the race. We are sometimes amazed when we are informed of the enormous consumption of this food, and remember that about one-third of the children born in the large cities are raised upon cow's milk. When we further consider the fact that about one-fifth to one-sixth of all children born in our large cities die before they reach one year of age, and that two-thirds of these are fed upon cow's milk in some form, we are convinced that it is no small responsibility that rests upon dispensers of this article of food. Statistics show that in New York and Brooklyn about one child in twenty is reported as dying from cholera infantum. It is admitted by physicians, that unwholesome milk has a great deal to do with the large number of deaths among children. This is not all that is to be said.

It is scarcely necessary to remind those who have any knowledge of milk that it is a great absorber of all kinds of odors and gases. It very readily becomes sour or putrid when not properly cared for, and in this condition it sickens not only babes but grown people who drink it. There are on record numerous examples of epidemics of scarlet fever, diphtheria, small-pox, and typhoid fever, including thousands of deaths, produced by the poisons of these diseases carried in the milk. These facts should make every one who handles milk for the market feel the awful responsibility that rests upon him. These are sufficient reasons for the efforts that are made by Boards of Health to keep the milk supply pure and wholesome. The measures adopted sometimes seem severe, but the sufferings of the inocent babes demand them. Judges and juries must protect the lives and health of the community against those whose ignorance, carelessness, recklessness, or dishonesty would sacrifice both.

I do not intend to intimate that all milk dealers are dishonest. Such a statement would be far from the truth. The most of them desire to deal only in a pure and wholesome article. Many fall short of their desire, through ignorance or carelessness as to the dangers of impure milk.

By *impure milk* I mean that which is rendered unwholesome from any cause whatever. The principle preventable causes of unwholesome milk are: diseased, badly housed, kept, and fed cows; filthy stables; dirty, improperly cooled, soured, partly churned, or putrid milk, or milk that has been handled by persons suffering with some contagious disease, or that has been tampered with by skimming, watering, or other process. As will be seen by the above, there is more danger of milk becoming unwholesome before it reaches the grocer or milk vendor, than from the addition of water. Milk contaminated by the air and filth of a dirty stable and from the cow's udders, or from the diseases of milkmen, or the cows themselves, is infinitely more disgusting and really dangerous, than that to which a little clean water is added. The over-crowded condition of the cow stables in and near our large cities is a positive hindrance to the production of wholesome milk. Cows which have pasture lands to feed upon are generally healthy and give better milk than those which are crowded into badly ventilated hovels, such as are seen everywhere in the vicinity of large cities.

The following rules contain some of the most important guides for the protection of the dealer in milk, as well as for the protection of the public :

1. The milk of diseased cows should not be sent to market. Any condition that produces a fever in a milch cow should be regarded as rendering the milk bad.

2. The milk of cows fed upon distillery swill, or those fed entirely or largely upon fermenting brewer's grains, should not be sold for infant's food.

3. Cows should not be allowed to drink stagnant pond or ditch water.

4. Milk from cows that are overheated or worried, at the time of milking, should not be sent to market.

5. If the udders are dirty, they should be washed clean before milking.

6. The milk should be cooled outside of the stable, and the cans should be covered during the process, to exclude air and dust. Milk should be kept at a temperature below 60° F., but ice should never be put into it.

7. Warm milk should never be received from the dealer, nor should the can be left out on the sidewalk in summer.

8. Milk should always be kept covered, and should never be kept in an ice-box with meats or vegetables possessing an odor.

9. Ice-boxes, stores and wagons, in which milk is kept, should be kept clean and sweet by occasional washing with chloride of lime followed by clean water, or soap and water.

10. When possible, only full cans should be received. A small full can is better than a large one partly filled, as the agitation and churning of the milk is less in a full can. Avoid the unnecessary handling of milk. The necessary agitation of shipping and delivering is an injury to it.

11. Milk that has been brought back from the morning rounds should not be mixed with other milk ; it should be cooled at once, and sold as soon as possible.

12. If milk is kept over night, a small portion of it should be boiled to see if it will curdle, before it is sold.

13. Each and every dairy's milk should be tested daily.

14. It is best to make a contract with the one who delivers the milk to you to furnish that of a given test by the lactometer, say 105 to 110, and giving at least 10 per cent. of cream.

15. Milk which contains dirt settling to the bottom of the can, blood, offensive odors or taste, should not be sold to customers.

16. *Cleanliness* in the handling of milk *is absolutely essential to its wholesomeness.*

BROOKLYN VITAL STATISTICS FOR AUGUST, 1888.

By J. S. Young, Dep. Commissioner of Health.

Data of comparison :

Population, estimated on July 1st, 1888	793,960
Inhabited houses, about	93,000

In the month of August, 1888, there were 1,721 deaths, the rate of mortality being 25.51 in every 1,000 of the population.

The number of births reported was	1,283
The number of marriages reported was	369
The number of still-births reported was	110

The mortality by classes and by certain of the more important diseases was as follows:

Causes:

1. Zymotic	620
2. Constitutional	350
3. Local	595
4. Developmental	115
5. Violence	41
Measles	4
Croup	19
Diphtheria	52
Scarlet Fever	17
Typhoid Fever	14
Whooping Cough	27
Malarial Diseases	15
Diarrhœal Diseases (all ages)	419
" " (under 5 years)	369
Phthisis	167
Bronchitis	41
Pneumonia	51
All Respiratory Diseases	119
Bright's Diseases	37
Puerperal Diseases	8
Old Age	22
Suicide	5

Reported cases:

Diphtheria	116
Scarlet Fever	98
Measles	34
Typhoid Fever	—

During the month 1 case of small-pox was reported, and was confirmed as small-pox. 1 case of small-pox was sent to hospital. No deaths from small-pox occurred in the city or in the hospital.

Deaths by sex, color, and social condition were as follows:

Male	885	Female	836
White	1691	Colored	30
Native	1295	Foreign	426
Married	349	Single	1204
Widows, Widowers, and not stated			168

Still-births (excluded from list of deaths) were as follows:

Males	60	Females	50
Total			110

Deaths in public institutions	125
Deaths in tenement houses	864
Inquest cases	128
Homicides	—
Suicides	5

Age Periods:

Deaths under 1 year	699
" " 5 years	289
Total deaths under 5 years	988
" " 5 to 20	84
" " 20 to 40	236
" " 40 to 60	214
" " 60 and upwards	199

Certain foreign and American cities show the following death-rate for the month of August:

Brooklyn	25.51	Vienna	21.92
New York	27.57	Paris	19.32
Philadelphia	24.89	London	16.36
Berlin	22.84	Glasgow	18.98
Dublin			19.22

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THE NEW YORK POLYCLINIC AND HOSPITAL.

The Seventh Annual Announcement of the New York Polyclinic and Hospital, a Clinical School for Graduates in Medicine and Surgery, has been received. The Class for the Session of 1887–8 numbered 337, an increase of 36 over the preceding year.

The changes in the Faculty are the appointments of Dr. Henry N. Heinemann, Professor of General Medicine, and Dr. Charles Stedman Bull, Professor of Ophthalmology.

The New York Polyclinic Hospital will be opened in October. The preliminary term began September 17th, and the regular term on September 24th.

"SCIENTIA SALUSQUE DEO."

MANUAL OF THE MEDICAL SOCIETY OF THE COUNTY OF KINGS.

CHRONOLOGICAL LIST OF MEMBERS, LIST OF ACTIVE MEMBERS AND BY-LAWS.

OFFICERS, 1888.

THE COUNCIL.

PRESIDENT.

WILLIAM WALLACE, M.D.

VICE-PRESIDENT.

A. ROSS MATHESON, M.D.

SECRETARY.

W. M. HUTCHINSON, M.D.

ASSISTANT SECRETARY.

DAVID MYERLE, M.D.

TREASURER.

WALTER B. CHASE, M.D.

LIBRARIAN.

JOS. H. HUNT, M.D.

CENSORS.

CHAS. JEWETT, M.D.
ALEX. HUTCHINS, M.D.
J. A. McCORKLE, M.D.
FRANK E. WEST, M.D.
CHAS. E. De LaVERGNE, M.D.

TRUSTEES.

CHAS. JEWETT, M.D. JOS. H. HUNT, M.D.
ALEX. HUTCHINS, M.D. A. ROSS MATHESON, M.D.
WM. M. THALLON, M.D.

ORGANIZATION OF THE SOCIETY.

On Monday, February 25, 1822, Drs. Charles Ball, Matthew Wendell, John Carpenter, W. D. Creed, Francis H. DuBois, and Adrian Vanderveer, practicing physicians in the County of Kings, met in the village of Flatbush to discuss the propriety of forming a County Medical Society.

These gentlemen, after appointing Drs. Wendell, DuBois, and Vanderveer as a committee to draft by-laws for the regulation of a medical society, adjourned to meet

March 2d, 1822.—This adjourned meeting was held at the residence of Wm. Stephenson, in the village of Brooklyn, at which it was decided to organize a society, to be known as the Medical Society of the County of Kings, of which the following were elected as the

FIRST BOARD OF OFFICERS:

Cornelius Low,	President.
Matthew Wendell,	Vice-President.
Adrian Vanderveer,	Secretary.
John Carpenter,	Treasurer.

At this meeting the committee previously appointed presented by-laws, which, after being considered article by article, were adopted.

The first anniversary meeting of the Society was held on the second Monday in April.

ACTIVE MEMBERS.

Lauren M. Allen, Canarsie.
William Anderson, 173 Union st.*
J. S. Andrews, Penn ave., East N. Y.
J. A. Arnold, Kings County Hospital.
J. G. Atkinson, 251 Adelphi st.
Benjamin Ayres, 213 Jefferson ave.
Fred D. Bailey, 214 Madison st
G. W. Baker, 48 Bedford ave , E. D.
N. A. Baldwin, 279 Lexington ave.
I. H. Barber, 36 Lafayette ave.
G. R. Barns, 170 Hull st.
H. L. Bartlett, Flatbush.
E. H. Bartley, 21 Lafayette ave.
H. B. Bryles, 442 Ninth st.
W. P. Beach, 128 Cambridge place.
C. D. Beasley, 646 Marcy ave.
Wm. N. Belcher, 25 S. Portland ave.
L. T. Bell, 245 Putnam ave
Charles N. Bellows, 442 Nostrand ave.
Herman Bender, 849 Willoughby ave.
W. H. Bennett, 188 Sixth ave.
J. R. Bird, 122 Putnam ave.
J. B. Blake, 194 Putnam ave.
H D. Bliss, 57 Madison st.
W. A. Bliss, 218 Eleventh st.
D. G. Bodkin, 92 Sands st.
J. B. Bogert, 225 Greene ave.
S. D. Boggs, cor. Tompkins ave. and Monroe st.
F. W. Bowron, 259 Tompkins ave.
W. J. Brandt, 405 Union st.
B. M. Briggs, 106 Willoughby st.
A. T. Bristow, 234 Clinton st.
Annie M. Brown, 488 Bedford ave.
D. R. Brown, 392 Clinton ave.
Wm. Browning, 54 Lefferts place.
Wm. W. Browning, 155 Reid ave.
Arthur C. Brush, 244 Carlton ave.
G. W. Brush, 2 Spencer pl.
Emilio Buchaca, 526 Macon st.
A. H. Buckmaster, 164 Clinton st.
E. S. Bunker, 117 St. John's place.
J. H. H. Burge, 132 Montague st.
Benj. Burroughs, Franklin ave.
Glenworth R. Butler, 402 Franklin ave.
John Byrne, 314 Clinton st.
P. Candidus, 228 S. Ninth st., E. D.
Chas. C Canfield, 118 Hart st.
E. J. Carolan, 856 Bedford ave.
J. L. Carney, 1158 Bedford ave.
Norris M. Carter, 499 Washington ave.
A. W. Catlin, 207 Greene ave.
Walter B. Chase, 645 Marcy ave.
S. B. Childs, 498 Classon ave.
S. Church, 239 Clinton st.
J. E. Clark, 340 Clinton st.
Alex. Cochran, 212 Clinton st.
H. L. Cochran, 266 Henry st.
J. A, Cochran, 212 Clinton st.
F. H Colton, 136 Montague st.
J. T. Conkling, 143 Remsen st.
C. D. Cook, 133 Pacific st.
John Cooper, 79 St James place.
W. J. Corcoran, 301 Clinton st.
Charles Corey, 22 South Oxford st.
J. H. Coverly, 191 Washington Park.
Chas. N. Cox, 489 Greene ave.
James Crane, 163 Clinton st.
L. F. Criado, 147 Ft. Greene place.
E. P. Crowell, 408 Franklin ave.
W. J. Cruikshank, 9 Lafayette ave.
A. M. Curry, 493 Classon ave.
G. W. Cushing, 221 Schermerhorn st.
George H. Cutter, 52 Bedford ave.
E A. Day, 314 Sumner st., E. D.
H. P. Dawe, 488 Monroe st.
C. E. De La Vergne, 184 Clinton st.
W. A. De Long, 285 S. Second st., E. D.
F. Del Risco, 226 Washington ave.
J. C. De Mund, New Utrecht.
R. L. Dickinson, 169 Clinton st.
Chas. E. Dorrity, 411 Union st.
A. J. Dower, 380 Union st
Wm. J. Doyle, 577 Classon ave.
J. H. Droge, 6 Stuyvesant ave.
Josephine Dupre, Oakland, Cal.
George Drury, 195 Adams st.
R. G. Eccles, 191 Dean st.
Benjamin Edson, 82 St. Mark's ave.
Edgar Eltinge, 2 Vernon place.
Z. T. Emery, 370 Greene ave.
Maurice Enright, 377 Madison st.
George A. Evans, 901 Bedford ave.
H. A. Fairbairn, 233 McDonough st.
J. N. Farrar, 1271 Broadway, N. Y.
Mary W. Faunce, 239 Adelphi st.
Herbert Fearn, 196 Clermont ave.
J. F. Feeley, 296 Lorimer st , E. D.
Geo. N Ferris, Flatbush.
B. F. Fessenden, 380 Adelphi st.
M. Figueira, 12 Stuyvesant ave.
J. W Fleming, 379 Bedford ave.
C. B. Fowler, 316 Tenth st.
G. R. Fowler, 302 Washington ave.
J. N. Freeman, 80 Hanson place.
Thomas R. French, 469 Clinton ave.
T. Frickenstein, 110 Union ave., E. D.
J. Fuhs, 209 Hewes st.
F. V. C Fuller, 110 St. James place.
S. E. Fuller, 77 Hanson place.
H. S. Gilbert, 311 Cumberland st.
C. P. Gildersleeve, 169 State st.
Wm. Gilfillan, 98 Remsen st.
Wm. J. Gilfillan, 79 Main st.
F. B. Gillette, 128 Calyer st., E. D.
T. C. Giroux, 141 S. Fourth st , E. D.

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* Where no name of town is given, Brooklyn is to be understood.

ACTIVE MEMBERS.

J. J. Gleavy, 377 Fourth st.
O. A. Gordon, 166 Tompkins ave.
Eliot Gorton,
L. C. Gray, 158 Montague st.
J. E. Gregory, 243 Washington ave.
E. Grether. 184 Meserole st.
J. Griffin, 90 Sands st.
G. P. Griffing, 597 Lorimer st., E. D.
S. C. Griggs, 141 Lefferts place.
C. F. Gunther, 301 Clinton st.
Gordon R. Hall, 264 Clinton st
Lucy M. Hall, 129 Pierrepont st.
A. C. Hallam, 524 Bedford ave.
H. T. Halleck, 61 Fleet st.
J. C. Halsey, 21 Concord st.
J. M. Harcourt, 305 Clinton st.
W. H. Harlin, 270 Sumner avenue.
John Harrigan, 401 Clinton street.
Audley Haslett, 115 Clinton st.
Edwin A. Hatch, 586 Marcy ave.
Joseph Healey, 150 Gates ave.
S. O. Hector, 130 Second place.
S. Hendrickson, 636 St. Mark's ave.
C. C. Henry, 81 Henry st.
J. W. Henry, 202 Halsey st.
W. B. Hewett, 408 Cumberland st.
C. N. Hoagland, 410 Clinton ave.
Eugene Hodenpyle, 43 Seventh ave.
David C. Holton, 97 Norman ave.
G. G. Hopkins, 350 Washington ave.
E. H. Hoxie, 1 Hart st.
F. P. Hudnut, 57 Hancock st.
J. H. Hunt, Bedford av. and Quincy st.
Alexander Hutchins, 796 DeKalb ave.
W. M. Hutchinson, 364 Henry st.
Joel W. Hyde, 215 Schermerhorn st.
J. W. Ingalls, Lewis av. c. Kosciusko st.
L. B. Irish, 283 Ninth st.
J. A. Jenkins, 150 Milton st.
F. Percy Jenks, 377 Sixth st.
Charles Jewett, 307 Gates ave.
F. A. Jewett, 334 Madison st.
Oswald Joerg, 243 Schermerhorn st.
J. A. John, Sheepshead Bay, L. I.
C. H. Johnson, 141 Greene ave.
J. G. Johnson, 153 Joralemon st.
C. N. D. Jones, 163 DeKalb ave.
T. A. Joye, 166 Clinton st.
J. A. Kene, 31 Debevoise place.
J. C. Kennedy, 82 Lewis ave.
J. S. King, 823 DeKalb ave.
S. T. King, 411 Carlton ave.
E. H. Knight, 81 Clinton ave.
J. L. Kortright, 234 Rodney st., E. D.
J. Krauter, 67 Stanhope st.
P. H. Kretzschmar, 402 Washington av.
W. H. Kretzschmar, East New York.
George R. Kuhn, 122 Clinton ave.
L. DeB. Kuhn, 471 Willoughby ave.
J. J. Lamadrid, 412 Greene ave.
Wm. B. Lane, 367 Greene ave.
George E. Law, 69 Pennsylvania ave., East New York.
Richmond Lennox, 114 Montague st.
A. S. Leonard, 131 McDonough st.
J. C. Lester, 401 Clinton st.
A. H. P. Leuf, Philadelphia, Pa.
E. A. Lewis, 102 Pierrepont st.
Frank Little, 135 Remsen st.
W. A. Little, 923 Bedford ave.
T. M. Lloyd, 265 Henry st.
H. Lowenstein, 150 Bushwick ave.
P. H. A. Lochran, 101 Dikeman st.
D. F. Lucas. 600 Pacific st
José J. Luis, 212 Grand ave.
J. B. Lung, — Marion st.
A. J. McCatty, Jamaica, W. I.
J. A. McCorkle, 149 Clinton st.
J. L. McCumber, Asylum, Flatbush.
John C. McEvitt, 407 Clinton st.
H. C. McLean, 479 Pacific st.
J. McManus, 445 Fourth ave.
G. McNaughton, 216 Greene ave.
L. C. McPhail, 127 Pierrepont st.
Wm. Maddren, 1 Hanson place.
Ed. Malone. 111 S. Second st., E. D.
C. S. Mann, 488 Greene ave.
L. D. Mason, 171 Joralemon st.
A. R. Matheson, 337 Union st
A. Mathewson, 139 Montague st.
N. Matson, 415 Greene ave.
W. C. Matson, 415 Greene ave.
H. C. Matthews, 894 Quincy st.
J. B. Mattison, 314 State st.
R. N. Mead, 344 Sackett st.
John Merritt, 842 President st.
Joseph Merzbach, 144 Wyckoff st.
E. G. Metcalf, 147 Lee ave.
F. H. Miller, 39 Pennsylvania ave.
W. F. Millington, 328 Ninth st.
E. J. Chapin Minard, 243 Quincy st.
W. Moitrier, 115 Lorimer st.
J. Fred Moore, 444 Pacific st.
Eliza M. Mosher, 129 Pierrepont st.
D. Myerle, 570 Bedford ave.
Jacob Nehrbas, 846 Bedford ave.
F. R. Newman, 135 Madison st.
H. Nichols, 195 Baltic st.
N. L. North, 509 Bedford ave.
N. L. North, Jr., 509 Bedford ave.
T. H. Northridge, 35 Greene ave
W. A. Northridge, 366 Schermerhorn st.
J. F. O'Connell, 344 Jay st.
Cornelius Olcott, 572 Bedford av., E. D.
S. H. Olmstead, 404 Clinton st.
Robert Ormiston, 117 S. Elliott place.
G. A. Ostrander, 61 Greene ave.
J. W. Ostrander, 95 Clark st
Andrew Otterson, 179 Washington st.
Wm. C. Otterson, 144 Pierrepont st.
Everett D. Page, 418 Greene ave.
A. R. Paine, 479 Clinton ave.

ACTIVE MEMBERS

Ernest Palmer, 155 Clinton st.
E. Parks, 35-A Kossuth place.
M. E. Parrott, 379 Jefferson ave.
J. M. Peacock, 247 Madison st.
L. S. Pilcher, 145 Gates ave.
Isaac H. Platt, Lakewood, N. J.
H. J. Pomeroy, 35 Fifth ave.
W. H. B. Pratt, 94 Sixth ave.
S. R. Pray, China.
P. J. Prendergast, 531 Henry st.
J. J. Prendergast, 259 Clinton st.
J. S. Prout, 26 Schermerhorn st.
J. R. Quinn, 449 Lafayette ave.
H. W. Rand, 141 Clinton st.
W. H. F. Randolph, 179 Herkimer st.
John Ranking, 302 Sumner ave.
J. C. Rappold, 750 Flushing ave.
Joseph M. Raub, 295 Clinton st.
J. A. Ray, 35 Jefferson st.
J. H. Raymond, 173 Joralemon st.
H. N. Read, 541 Henry st.
H. B. Reed, 12 Verona place.
W. W. Reese, 175 Hicks st.
John Rendell, 100 Penn st.
E. Reynolds, 140 Lafayette ave.
J. E Richardson, 125 S. Oxford st.
H. F. W. Risch, 212 Seventeenth st.
A. H. Ritter, 262 Hewes st.
S. C. Robinson, 431 Clinton ave.
T. M. Rochester, 2 St. James place.
F. W. Rockwell, 6 Lafayette ave.
H. C. Rogers, 377 Gates ave.
A. J. Rooney, 226 Seventeenth st.
F. H. Ross, 128 Sands st.
Anna Forest Rowe, 223 Cumberland st.
E. S. Rupert, 38 Schermerhorn st.
J. D. Rushmore, 129 Montague st.
J. E. W. Sanderson, 48 Debervoise pl.
S. Santoire, 128 Clinton st.
J. C. Schapps, 486 Bedford ave., E. D.
P. L. Schenck, 60 St. Mark's ave.
Teunis Schenck, New Utrecht.
C. B. Schlatter, 158 Seventeenth st.
F. A. Schlitz, 318 S. Fifth st., E. D.
G. Schmetzer, 734 Flushing ave.
J. E. Schroeder, 250 Ninth st.
Wm. Schroeder, 274 President st.
R. Scrimgeour, 316 Tenth st.
J. J. Shanks, Asylum, Flatbush.
J. C. Shaw, 2 Sidney place.
A. W. Shepard, 126 Willoughby st.
Chas. H. Shepard, 80 Columbia H'ghts.
W. Sherman, 338 Ninth st.
S. Sherwell, 33 Schermerhorn st.
N. B. de S. Sizer, 336 Greene ave.
A. J. C. Skene, 167 Clinton st.
Joseph E. Smith, 270 Marcy ave.
L. C. Smith, 145 Adelphi st.
S. J. Soerensen, 124 Carroll st.
Agnes Sparks, 93 South Portland ave.
S. Fleet Speir, 162 Montague st.
W. E. Spencer, 264 Clermont ave.
Carl O. H. Steinke, 220 Seventeenth st.
J. H. Sterling, 225 Schermerhorn st.
R. H. Stone, 178 Jay st.
W. E. Stratton, 71 Seventh ave.
F. H. Stuart, 123 Joralemon st.
Arnold Stub, 138 Dean st.
S. D. Sullivan, 74 McDonough st.
W. F. Swalm, 118 Lafayette ave.
James Sweeney, 192 N. Sixth st , E. D.
C. H. Terry, 540 Washington ave.
W. M. Thallon, 125 St John's place.
W. H. Thayer, 171 Livingston st.
E. P. Thwing, 156 St. Mark's place.
Noah Tittemore, 1075½ DeKalb ave.
T. W. Topham, 28 Willoughby st.
J. H. Trent, 202 Seventeenth st.
H. A. Tucker, Jr , 393 Clinton st.
Henry C. Turner, 382 Court st.
Joseph M Turner, 413 Henry st.
J. Y. Tuthill, 100 Ft. Greene place.
J. M. Van Cott, 188 Henry street
J. C. Vanderveer, 599½ Sixth ave.
J. R. Vanderveer, 301 Carlton ave.
J. Van Harlingen, 166 Duffield st.
R. L. Van Kleek, Gravesend.
John Van Ness, 942 Bedford ave.
B. S. Van Zile, 161 Willoughby st.
G. Wackerhagen, 188 State st.
James D. Wade, 252 S. Ninth st., E. D.
John E. Wade, 20 Kossuth place.
Jerome Walker, 8 Seventh ave.
William Wallace, 183 Congress st.
G. W. Wells, 157 State st.
G. W. Welty, 500 Clinton st.
F. E. West, 24 Clinton st.
B. F. Westbrook, 174 Clinton st.
G. R. Westbrook, 198 Schermerhorn st.
F. Weygandt, 645 Bedford ave.
H. D. White, 506 Monroe st.
G. R. White, 380 Ninth st.
G. W. White, Kings Co. Hospital.
Howard Whiting, 224 Hewes st.
George Wieber, 181 S. Fifth st., E. D.
J. S. Wight, 30 Schermerhorn st
J. G. Wilbur, 544 Washington st.
Thomas Wilde, 127 Seventh ave.
H. F. Williams, 450 Classon ave.
M. S. Williams, 395 Sixth ave.
J. McF. Winfield, 9 New York ave.
D. M. Wooley, 310 Sumner ave.
F. W. Wunderlich, 165 Remsen st.
R. M. Wyckoff, 532 Clinton ave.
J. L. Zabriskie, Flatbush.
C. Zellhoefer, 175 S. Fourth st., E. D.

CHRONOLOGICAL LIST OF MEMBERS.

Members who founded the Society, April 8, 1822.

* Cornelius Low	licensed	1782
* Francis H. DuBois	“	1802
* Matthew Wendell	“	1804
* Joseph Gedney T. Hunt	“	1804
* Charles Ball	“	1806
* William D. Creed	“	1809
* John Carpenter	“	1812
* Adrian Vanderveer,	M.D., Coll. P. and S., N. Y.	1818
* Thos. Wilson Henry,	“ “ “ “	1820

NAME.	GRADUATE OR LICENTIATE OF	DATE OF MEMBERSHIP.
* Nelson L. Hurd	*Medical Institution of Yale College*, 1822	1823
* Joseph N. Smith	“ *Society County of Kings*, 1827	1824
* Nelson A. Garrison	“ “ “ 1823; *M.D. Reg's Un. N. Y.*, 1858,	1825
‡ George Cox	*Royal College of Surgeons (London)*	“
* John Cole, Jr	*College Physicians and Surgeons, N. Y.*, 1824	1827
* John B. Zabriskie.	*University of Pennsylvania*, 1827	1829
* Isaac J. Rapelye	*College Physicians and Surgeons, N. Y.*, 1820	1830
* Thos. Jefferson Jones	“ “ “ “ *Fairfield*, 1825	“
* John C. Fanning	“ “ “ “ *N. Y.*, 1825	“
* Frederick Buckelew	*New Jersey State Medical Society*, 1833	“
William G. Hunt	*New York State* “ “ 1832	1832
* Ripley E. W. Adams	*Rensselaer County Medical Society*	“
* Robert Edmond	*N. Y. State Medical Society*, 1831	1833
* James English DuBois	*College Physicians and Surgeons, N. Y.*, 1832	“
* William H. Van Sinderen	“ “ “ “ “ 1830	“
* George Marvin	*University of Pennsylvania*, 1821	1834
Ferdinand W. Ostrander	*N. Y. State Medical Society*, 1828	“
* John V. E. Vanderhoef	*Medical Society County of Kings*, 1833	“
* Samuel Boyd, Jr	*College Physicians and Surgeons, N. Y.*, 1828	“
* Frederick W. Hurd	*N. Y. State Medical Society*, 1834	“
* Jno. Sullivan Thorne	*College Physicians and Surgeons, N. Y.*, 1829	“
† Cyrus Frink	*Harvard University*, 1824	“
* Lucius Hyde	*N. Y. State Medical Society*, 1825	1835
* Theodore L. Mason	*College Physicians and Surgeons, N. Y.*, 1825	“

CHRONOLOGICAL LIST.

NAME.	GRADUATE OR LICENTIATE OF	DATE OF MEMBERSHIP.
† Samuel C. Merwin	*University of Pennsylvania*, 1829	1835
* Joseph Howard	*College Physicians and Surgeons, N. Y.*, 1831	“
‡ John P. Tarbell	*N. Y. State Medical Society*, 1827	“
* Purcell Cooke	*Ct. Med. Soc.*, 1824; *M. D. Regents, Univ., N. Y.*, 1851	“
† Chauncey Lewis Cooke	*Medical Institution of Yale College*, 1829	“
* Thomas B. Downing	*College of Physicians and Surgeons, N. Y.*, 1834	“
* Henry Willsher	*Royal College of Surgeons (London)*	“
* Samuel Hart	*N. Y. State Medical Society*, 1834	“
* Theodore F. King	*College of Physicians and Surgeons, N. Y.*, 1827	“
* Peter McGivney	*Medical Society of Orange County*	“
* Abraham Van Pelt	“ “ *Herkimer County*	“
* Charles Rowland	*Medical Institution of Yale College*, 1824	“
* Jonathan W. Brooks	*Jefferson Medical College, Penn.*, 1835	“
† Alfred C. Post	*College Physicians and Surgeons, N. Y.*, 1827	“
* George Gilfillan	“ “ “ “ “ 1834	1836
* George C. Ball	*New York State Medical Society*, 1835	“
* Bradley Parker	*Medical Department, Dartmouth College*, 1824	“
† Henry Forrester Spear	*Berkshire Medical Institution*, 1826	1837
† David N. Schoonmaker	*College Physicians and Surgeons, N. Y.*, 1836	“
† H. H. Dexter	*N. Y. State Medical Society*	1838
John Condit Halsey	*College Physicians and Surgeons, N. Y.*, 1834	1839
† Christopher R. McClellan	*University of Maryland*, 1835	“
† Junius J. Hulbert	*N. Y. County Medical Society*, 1839	1841
† Dayton Decker	*New York State Medical Society*, 1840	“
‡ Robert Rosman	*College Physicians and Surgeons, N. Y.*, 1832	1842
* William Kellogg Brown	*Medical Department, Dartmouth College*, 1829	“
* George I. Bennet	*University, City of New York*, 1842	“
† Rufus Belden	*Berkshire Medical Institution*, 1834	“
† John W. Corson	*Albany* “ *College*, 1842	“
† David Fisher Atwater	*Medical Institution, Yale College*, 1842	“
* Ezekiel Ostrander	*Columbia College, Medical Department*, 1804	“
* Dudley Atkins	*University of Pennsylvania*, 1820	“
* Edward Bullus	*College Physicians and Surgeons, N. Y.*, 1833	1843
* Robert McMillan	*N. Y. State Medical Society*, 1813	1844
* William Swift	*College Physicians and Surgeons, N. Y.*, 1843	“
* Wm. Henry Dudley	“ “ “ “ “ 1842	“
* James Harvey Henry	*Berkshire Medical Institution*, 1827	“
* Wm. Coley Betts	*Medical Institution, Yale College*, 1843	“
* John McKenna	*University, City of New York*, 1843	“
* Henry J. Cullen	*Geneva Medical College, M. S. C. Kings*, 1843	“
† Jno. Mosely Moriarty	*Harvard University*, 1831	“
Jas. Howard Hutchins	*Medical Institution, Yale College*, 1840	“
† Sam'l Johnson Osborn	*College Physicians and Surgeons, N. Y.*, 1844	“
Andrew Otterson	*University City of New York*, 1844	1845
† Henry L. Benjamin	*College Physicians and Surgeons, Fairfield*, 1832	1845
† Daniel Ayres, Jr.	*University, City of New York*, 1845	“

CHRONOLOGICAL LIST.

NAME.	GRADUATE OR LICENTIATE OF	DATE OF MEMBERSHIP.
* Chauncey L. Mitchell	*College Physicians and Surgeons, N. Y.*, 1836	1845
* T. Anderson Wade	*Berkshire Medical Institution*, 1843	"
† John F. Morse	*University City of New York*, 1844	"
† Chas. Brueninghausen	" *Berlin, Prussia*	1846
† Jas. D. Trusk	" *City of New York*, 1844	"
* Jos. Patrick Colgan	*Jefferson Medical College, Pennsylvania*, 1844	1847
* John Cochran	*College Physicians and Surgeons, N. Y.*, 1843	"
* Edwin N. Chapman	*Jefferson Medical College. Pennsylvania*, 1845	"
† Chas. Smith Shelton	*Medical Institution, Yale College*, 1844	"
* Daniel Brooks	*Vermont Medical College*, 1845	"
* Ulric Palmedo	*University Goettingen*, 1830, *and Berlin*	"
‡ Edward E. Price	*N. Y. State Medical Society*, 1845	1848
† Benjamin Weeks	*Vermont Academy of Medicine*, 1836	"
John Adams Betts	*Medical Institution of Yale College*, 1848	"
† Matthew H. Hudson	*Berkshire Medical Institution*, 1844	"
Wm. Henry Williams	*Medical Institution of Yale College*, 1847	"
† Edward C. Franklin	*University, City of New York*, 1844	"
James Crane	*Jefferson Medical College, Pennsylvania*, 1829	"
† John Ball	*University, City of New York*, 1846	"
† Edward Hagerty	" *of Maryland*, 1843	"
Otto Rotton	*College Physicians and Surgeons, N. Y.*, 1839	"
* Augustus Kalt	*University of Bonn, Germany*	1849
† Garritt V. Manley	*Castleton Medical College*, 1846	"
* Titus William Powers	*Medical Institution of Yale College*, 1831	"
* Horatio Southgate Smith	" *Department, Bowdoin* " 1843	"
* John G. Ladd	*University of Virginia*, 1845	"
† Frederick Morris	" " *City of New York*, 1842	"
Daniel Embury Kissam	*College Physicians and Surgeons, N. Y.*, 1848	1850
Robert R. Rhodes	*University, City of New York*, 1850	"
* Augustus Robbins	*Harvard University*, 1832	"
† Roger Smith Olmstead	*Medical Institution, Yale College*, 1849	1852
* Jno. Ludlow Crane	*University, City of New York*, 1845	"
* Leonard C. McPhail	" *Maryland*, 1832, *and Paris*	"
Alexander Little	*New York Medical College*, 1852	1853
* William H. Van Duyne	*Medical Society, County Kings*, 1857	1857
* George Cochran	*College Physicians and Surgeons, N. Y.*, 1852	1858
* Joseph C. Hutchison	*University of Pennsylvania*, 1848	"
* Chas. Edward Isaacs	" " *Maryland*, 1833	"
John Van Ness	*M, S. C. Kings*, 1852; *M. D. Regents, Univ., N. Y.*, 1867	"
* Charles Neuhaus	*University of Berlin, Prussia*	"
* James Strong	*College Physicians and Surgeons. N. Y.*, 1855	"
† Richard Barthelmess	*University, Wurtzburg, Bavaria*	"
† Arnold Hallett	" *City of New York*, 1848	"
* Samuel J. Swalm	*N. Y. State Medical Society*, 1845	"
† Carl Aug. Louis Bauer	*University of Berlin, Prussia*	"
Richard Miles Buell	*Medical Institution, Yale College*. 1852	"

CHRONOLOGICAL LIST.

NAME.	GRADUATE OR LICENTIATE OF	DATE OF MEMBERSHIP.
* Wm. Ferdinand Heuser	*University Marburg, Hesse Cassel*, 1843	1858
John Byrne	*University of Edinburgh*, 1845	“
* Samuel Hart	*Harvard University*, 1821	“
* Dillon S. Landon	*University, City of New York*, 1849	“
† D. Tompkins Gray	“ “ “ 1852	“
* William Arming,	*University of Vienna, Austria*	“
Jno. T. Gilman Leach	*College Physicians and Surgeons, N. Y.*, 18 1	“
† Agrippa Nelson Bell	*Jefferson Medical College, Penn.*, 1842	“
* John A. Brady	*Vermont* “ “ 1852	“
† Harrison Teller	*Medical Society, Westchester Co*, 1838	“
† Lewis Cruger Hasell	*University of Pennsylvania*, 1852	1859
† John Sylvester Young	*College Physicians vnd Surgeons. N. Y.*, 1854	“
* William E. Mulhallon	*Jefferson Medical College, Penn.*, 1841	“
† John Hill, Jr.	*University, City of New York*, 1845	“
* Elisha Barber	*Harvaad University*, 1853	“
Orson Hopkins Smith	*Vermont Medical College*, 1848	“
J. H. Hobart Burge	*University, City of New York*, 1848	“
Jas. Lorenzo Farley	*College Physicians and Surgeons, N. Y.*, 1857	“
† John Cooper	*Royal College of Surgeons (London)*, 1837	“
* James M. Minor	*University of Pennsylvania*, 1837	“
* Francis M. Potter	*College of Physicians and Surgeons, N. Y.*, 1832	“
† William E. Whitehead	*University City of New York*, 1853	“
* Dewitt C. Enos	*College Physicians and Surgeons, N. Y.*, 1846	“
John T. Conkling	“ “ “ “ “ 1855	“
* Henry C. Simms	*Jefferson Medical College, Penn.*, 1855	“
Nelson Luther North	*College Physicians and Surgeons, N. Y.*, 1854	“
Joseph Mott Turner	*Transvylvania University Ky.*, 1841	“
Charles T. Chase	*Jefferson Medical College, Penn.*, 1850	“
† Edward R. Squibb	“ “ “ “ 1845	“
* Cornelius H. Murphy	*University City of New York*, 1857	“
† Charles G. Rothe	*N. Y. Medical College*, 1853	“
Homer Lyman Bartlett	*College Physicians and Surgeons, N. Y.*, 1855	“
* Thomas Turner	*University of Pennsylvania*, 1850	“
William H. Gardiner	“ *City of New York*, 1847	“
† Hiram Hayden Atwater	*Vermont Medical College*, 1851	“
Fred. C. Demund	*College Physicians and Surgeons, N. Y.*, 1855	“
† James S. Hawley	*Medical Department, University of Buffalo*, 185	“
* John J. Campbell	*College of Physicians and Surgeons, N. Y.*, 1856	“
James Stewart	*Harvard University*, 1852	“
† John Malone	*Georgetown Medical College*	1860
† W. B. Crandall	*Albany* “ “ 1858	“
† Chas. Edw. Briggs	*Harvard University*, 1856	“
† Benj. Franklin Bassett	*Medical Institution, Yale College*, 1851	“
Joseph B. Jones	*College Physicians and Surgeons, N. Y.*, 1855	“
Timothy M. Ingraham	*Vermont Medical College*, 1845	“
† M. W. Leighton	*N. Y.* “ “ 1858	“

CHRONOLOGICAL LIST.

NAME.	GRADUATE OR LICENTIATE OF	DATE OF MEMBERSHIP.
† Jas. Lawrence Little	*College of Physicians and Surgeons, N. Y.*, 1860	1860
Robert Ormiston, Jr	*University of Pennsylvania*, 1858	"
John Geo. Johnson	*College Physicians and Surgeons, N. Y.*, 1857	"
† Frank Hastings Hamilton	*University of Pennsylvania*, 1833	"
† William Law, Jr	*College Physicians and Surgeons, N. Y.*, 1851	"
* Richard H. Hinman	" " " " " 1858	"
† Cornelius H. Schapps	*New York State Medical Society*, 1840	"
William W. Reese	*University of Pennsylvania*, 1845	"
* Alex. Duncan Wilson	*College Physicians and Surgeons, N. Y.*, 1859	"
Cornelius Olcott	*University City of New York*, 1849	"
Isaac Henry Barber	*College Physicians and Surgeons, N. Y.*, 1851	"
† Chester Parkhurst	*Castleton Medical College*, 1828	"
† Thos. Knowlton Marcy	*College Physicians and Surgeons, N. Y.*, 1860	"
William Housel	*University of Pennsylvania*, 1833	1862
Jos. Edwin Clark	*College Physjcians and Surgeons, N. Y.*, 1849	"
* Daniel Albert Dodge	" " " " " 1852	"
* Joseph P. Colgan	" " " " " 1857	"
Alexander Cochran	" " " " " 1855	"
William Gilfillan	*University Edinburgh*	"
* William Hale Davel	*Harvard University*, 1850	"
* Nathaniel Ford	*Medical Department, Bowdoin College* 1836	"
† James M. Allen, Jr	*College Physicians and Surgeons, N. Y.*, 1856	"
* Sam'l Paul McElroy	" " " " " 1858	1863
Sam'l Fleet Speir	*University City of New York*, 1860	"
† Inglis Lough	" " " 1861	"
† Jarvis M. Andrews	*College Physicians and Surgeons, N. Y.*, 1845	"
* Edward H. Duggan	*Long Island College Hospital*, 1861	"
‡ Charles W. Bates	*University City of New York*. 1860	"
* Sam'l Hawley Olmstead	*Medical Institution of Yale College*, 1861	"
† Edward Bennett	*University City of New York*, 1862	"
* Alpheus Bryant Clarke	*Medical Institution of Yale College*, 1850	1864
* Thomas G. Catlin	*Medical Society, St. Lawrence Co.*, 1830	"
* Edw. Arnold Whaley	*College Physicians and Surgeons, N. Y.*, 1851	"
‡ Geo. H. R. Bennet	*University City of New York*, 1860	1865
† John Thornley	" *of Penniylvania*, 1838	"
* Rich'd Cresson Stiles	" " " 1854	"
* George F. Ayling	*Long Island College Hospital*, 1864	"
Alex. J. C. Skene	" " " " 1863	"
John L. Zabriskie	*University City of New York*, 1853	"
* Thomas J. C. Kelly	*Philadelphia College of Medicine*	"
Jarvis S. Wight	*Long Island College Hospital*, 1864	"
† George K. Smith	*University City of New York*, 1859	"
Teunis Schenck	*College Physicians and Surgeons, N. Y.*, 1865	"
Joshua Green Wilbur	*Harvard University*, 1862	1866
† John W. Robie	*College Physicians and Surgeons, N. Y.*, 1861	"
† James R. Bird	" " " " " 1858	"

CHRONOLOGICAL LIST.

NAME.	GRADUATE OR LICENTIATE OF	DATE OF MEMBERSHIP.
Alexander Hutchins	*New York Medical College*, 1860	1866
Benjamin F. Fessenden	*University of Pennsylvania*, 18 3	"
Wm. Carter Otterson	*College Physicians and Surgeons, N. Y.*, 1852	"
* Matthew B. Phillips	*Bellevue Hospital Medical College*, 1865	"
† Francis Goodwin	*Royal College of Surgeons (London)*	"
Fred. Henry Colton	*Long Island College Hospital*, 18 4	"
Jonathan S. Prout	*National Medical College*, 1856	"
Charles Corey	*Medical Department, Dartmouth College*, 1856	"
Wm. Henry Thayer	*Harvard University*, 1844	"
* Francis W. Bird	*Queen's University, Canada*, 1859	"
† Homer Geo. Newton	*University City of New York*, 1863	"
Joel Wilbur Hyde	*Medical Institution, Yale College*, 1861	"
Ponce Marie Nichtern	*College Physicians and Surgeons, N. Y.*, 1846	"
† John J. Caldwell	*New York Medical College*, 1858	"
* Albert Vickers	*University of Maryland*	"
† Daniel Ambrose	*Queen's University, Ireland*	"
Thomas Wilde	*Bellevue Hospital Medical College*, 1866	"
Thomas P. Norris	*University City of New York*, 1854	1867
† James McMillan	*Long Island College Hospital*, 1863	"
Lewis D. Mason	" " " " 1866	"
* James L. H. Elmendorf	" " " " "	"
* George F. Lewis	" " " " "	"
Nathan Alden Robbins	*Harvard University*, 1864	"
† Sam'l Nelson Fisk	*University City of New York*, 1861	"
* Matthew Francis Regan	*College Physicians and Surgeons, N. Y.*, 1856	"
Henry Cushman Turner	" " " " " 1867	"
† John C. Goodridge, Jr.	*Long Island College Hospital*, 1866	"
† Rich d Morris Wyckoff	*Bellevue Hospital Medical College*, 1864	"
Justus Elmore Gregory	*Albany Medical College*, 1863	"
* Orson C. sparrow	*Long Island College Hospital*, 1864	"
Arthur Mathewson	*University City of New York*, 1861	"
† Clarence Ewen	*Bellevue Hospital Medical College*, 1862	"
Herbert Fearn	*N. Y. Medical College*, 1857	"
William Wallace	*University of Edinburgh*, 1856	"
† Edward A. Brown	*Long Island College Hospital*, 1861	"
* Orestes M. Pray	*Bellevue Hospital Medical College*, 1863	"
Richard H. Stone	*College Physicians and Surgeons, N. Y.*, 1866	"
† Alfred Large	*Long Island College Hospital*, 1865	1868
* Joseph C. Snively	" " " " 1867	"
A. Warner Shepard	" " " " 1868	"
Wm. Jas. Gilfillan	*College Physicians and Surgeons, N. Y.*, 1862	"
† Arthur Edw. Spohn	*Long Island College Hospital*, 1867	"
* Chas. C. Jewett	*N. Y. Medical College*, 1854	"
* Hiram B. White	*Vermont* " " 1857	"
* Jonathan A. White	" " 1852	"
Alex. Jos. Rooney	*Bellevue Hospital College*, 1867	"

CHRONOLOGICAL LIST.

NAME.	GRADUATE OR LICENTIATE OF	DATE OF MEMBERSHIP.
† George W. Baker	*College Physicians and Surgeons, N. Y.*, 1864	1868
† Thos. Naegele DeBowes	*University City of New York*, 1858	"
Jerome Walker	*College Physicians and Surgeons, N. Y.*, 1868	"
* James Bigelow	*Bellevue Hospital Medical College*, 1866	"
Geo. Aug. Ostrander	*College Physicians and Surgeons, N. Y.*, 1858	"
Noah Tittemore	*University of Vermont*, 1863	"
William H. Randolph	" " *Michigvn*, 1862	"
John W. Ostrander	*College Physicians and Snrgeons, N. Y.*, 1866	"
* Patrick Pendergast	" " " " " 1853	"
* Charles H. Potter	*Bellevue Hospital Medical College*, 1868	"
Dominick G. Bodkin	*University City of New York*, 1866	"
† John M. Kellogg	*College Physicians and Surgeons, N. Y.*, 1868	"
William H. Harlin	" " " " " 1363	"
† James A. Blanchard	" " " " " 1867	"
Chas. Fred. Clark	" " " " " 1866	1869
* Chas. Alfred Boner	*Harvard University*, 1868	"
* Lurad Heath Crook	*Bellevue Hospital Medical College*, 1865	"
Job Corbin	*University of Vermont*, 1859	"
Charles H. Terry	*Albany Medical College*, 1864	"
Albert Coberg Hallam	*Medical Institution, Yale College*, 1866	"
† George Z. Bretz	*Long Island College Hospital*, 1864	"
† Peter Rouse Cortelyou	*Bellevue Hospital Medical College*, 1867	"
Audley Haslett	*College Physicians and Surgeons, N. Y.*, 1867	"
† G. Rankine White	*University of Edinburgh*, 1863	"
† Charles W. Vrooman	" " *Michigan*, 1868	"
* David Richard Klawitter	" " *Greifswald, Prussia*, 1863	"
* Charles Henry Giberson	" " *Vermont*, 1861	"
* John N. Freeman	" " *City of New York*, 1860	"
Thomas P. Corbally	*Bellevue Hospital Medical College*, 1868	"
* John W. Hamilton	*Jefferson Medical College*, 1855	"
* Nelson Samuel Drake	*College Physicians and Surgeons, N. Y.*, 1853	"
* Thos. Andrew Brady	*Bellevue Hospital Medical College*, 1867	"
George G. Hopkins	*University of Pennsylvania*, 1868	"
† Wm. Merrill Bullard	" " *Goettingen, Germany*, 1867	"
† Benj Avery Segur	*College Physicians and Surgeons, N. Y.*, 1860	"
William A. Bliss	*Albany Medical College*, 1866	"
† Charles A. H. Szigethy	*University Gieseen, Germvny*	"
James Watt	*Long Island College Hospital*, 1866	1870
Joseph Mulreany.	*Royal College of Surgeons, London and Edinburgh*	"
Frank Williams Rockwell	*College Physicians and Surgeons, N. Y.*, 1868	"
† Peter J. Dwyer	*Queen's University, Ireland*, 1862	"
Samuel B. Childs	*University City of New York*, 1869	"
John D. Sullivan	" " " 1867	"
Nathaniel Matson	" " " 1864	"
† William H. Bates	" " " 1863	"
† Fred. Wooster Owen	*Georgetown Medical College ; University of Paris*	"

CHRONOLOGICAL LIST.

NAME.	GRADUATE OR LICENTIATE OF	DATE OF MEMBERSHIP.
F. W. Wunderlich	*St. Louis Medical College*, 1864	1870
† Chas. Dana T. Gibson	*College of Physicians and Surgeons, N. Y.*, 1868	"
* Jno. Geo. Shuttleworth	*University City of New York*, 1867	"
Charles J. Stahl	" " " 1869	"
† Edward G. Colton	*Bellevue Hospital Medical College*, 1858	"
† Egbert D. Doolittle	" " " " 1870	"
Alex. Ross Matheson	*University of Michigan*, 1870	"
John H. Sterling	" *City of New York*, 1869	"
* Samuel G. Armor	*Kemper Medical College, Missouri*, 1844	"
* Elijah W. Carpenter	*Harvard University*, 1837	"
Stephen C. Griggs	*University City of New York*, 1849	"
* James J. McCarty	*College Physicians and Surgeons, N. Y.*, 1868	"
William F. Bedell	*University City of New York*, 1867	"
Claude B. Schlatter	" *Zurich, Switzerland*, 1864	"
George Wackerhagen	*College Physicians and Surgeons, N. Y.*, 1869	"
† Henry McManus	" " " " " "	1871
Henry Clay Matthews	*University of Vermont*, 1870	"
† Myron J. Davis	*Albany Medicvl College*, 1860	"
† George Miller Beard	*College Physicians and Surgeons, N. Y.*, 1866	"
Arnold Welles Catlin	*University of Pennsylvania*, 1865	"
† Rich'd Gottlob Hesse	" " *Germany*, 1869	"
Charles Jewett	*College Physicians and Surgeons, N. Y.*, 1871	"
Edw. Seaman Bunker	*Bellevue Hospital Medical College*, 1871	"
* William McCollum	*Castleton Medical College*, 1853	"
Samuel Santoir	*Victoria University, Montreal*, 1869	"
* Wilbur Fisk Sanford	*University City of New York*, 1867	"
† John Adam Brodie	*College Physicians and Surgeons, N. Y.*, 1855	"
Joseph H. Raymond	" " " " " 1869	"
* Alpheus Benning Crosby	*Medical Department Dartmouth College*, 1856	"
Jas. Duncan Wade	*University City of New York*, 1866	1872
Cyrus Sweetser Mann	*Harvard University*, 1843	"
J. Williams Henry	*Georgetown Medical College*, 1866	"
† John D. Rushmore	*College Physicians and Surgeons*, 1870	"
* Robert Nutting Atwood	*University of Vermont*, 1861	"
† John Fred. Barnett	*Medical Institution of Yale College*, 1869	"
† William Henry Caemmerer	*University of Jena, Saxony*, 1847	"
Samuel Sherwell	*Bellevue Hospital Medical College*, 1869	"
Henry Nash Read	*Long Island College Hospital*, 1870	"
Lewis Stephen Pilcher	*University of Michigan*, 1866	"
Peter Lawrence Schenck	*College Physicians and Surgeons, N. Y.*, 1865	"
Wm. George Russell	*Long Island College Hospital*, 1871	"
Richard L. Van Kleeck	*University City of New York*, 1863	"
George Ryerson Fowler	*Bellevue Hospital Medical College*, 1871	"
John Van Harlingen	*College Physicians and Surgeons, N. Y.*, 1869	"
H. Augustus Langdon	*Long Island College Hospital*, 1871	"
William Hall Brace Pratt	*College Physicians and Surgeons, N. Y.*, 1867	"

CHRONOLOGICAL LIST.

NAME.	GRADUATE OR LICENTIATE OF	DATE OF MEMBERSHIP.
George R. Kuhn	*Long Island College Hospital*, 1872	“
† Ferdinand Fred. Keller	*University of Wurzburg*, 1854	“
† Will F. Crutchley	*National Medical College*, 1870	“
Ernest G. Metcalfe	*Long Island College Hospital*, 1872	“
† Frederic Porter Mann	*Harvard University*, 1848	1873
† William E. Griffiths	*College Physicians and Surgeons, N. Y.*, 1868	“
† Jerome Henry Kidder	*University of Maryland*, 1866	“
Francis Watson Bowron	“ *City of New York*, 1871	“
† William M. Nickerson	“ *Pennsylvania*, 1867	“
† Edwin Everett Smith	*Long Island College Hospital*, 1871	“
† John Cooper	*Royal College of Surgeons, London*, 1837	1839 *and* 1873
Stephen E. Fuller	*College Physicians and Surgeons, N. Y.*, 1858	“
† Samuel James Brady	*Bellevue Hospital Medical College*, 1868	“
† John Herbert Twombley	*Harvard University*, 1872	“
* Joseph M. Homiston	*Medical Institution, Yale College*	“
† Charles Eddy	*Bellevue Hospital Medical* “ 1873	“
† George Alfred Evans	“ “ “ “ “	“
Benjamin Edson	*University City of New York*, 1873	“
* Abram Leland Lowell	“ “ “ 1861	“
Samuel Curtis Robinson	*Medical Institution, Yale College*, 1855	“
William Maddren	*Bellevue Hospital Medical* “ 1873	“
† John Edwin Ensell	*College Physicians and Surgeons, N. Y.*, 1872	“
† George H. Whaley	“ “ “ “ “ 1870	“
Nelson B. Sizer	*University City of New York*, 1871	“
† Louis Daniel Radzinsky	“ “ “ 1859	“
Thomas Baylis	“ “ “ 1860	“
* Charles Benj. Cutter	*College Physicians and Surgeons, N. Y.*, 1873	1874
† James Bonaventura Leary	*Bellevue Hospital Medical College*, 1873	“
* John Mathews	*Medical Department, Bowdoin College*, 1845	“
† William Thornton Parker	*University of Bavaria, Munich*, 1873	“
† Lewis E. Meeker	*Detroit Medical College*, 1872	“
William Anderson	*L. R C. P. Edin , L. R. C. S. Edin.*, 1871	“
† Walter Reed	*University of Virginia*, 1869	“
Julio Juan Lamadrid	“ “ *Pennsylvania*, 1871	“
‡ Oscar Lescure	“ “ *Michigan*, 1872	“
† Thomas J. Holbrook	“ “ *Vermont*, 1854	“
† Alvin Charles Henderson	“ “ *Michigan*, 1873	“
† John Kennedy Ambrose	*Long Island College Hospital*, 1873	“
Stewart Church	*College Physicians and Surgeons, N. Y.*, 1870	“
Thomas R. French	“ “ “ “ “ 1871	“
* Silas D. Scudder	*New York Medical College*, 1858	“
† John Cole Graham	*Cleveland* “ “ 1872	“
† Carlos Fred. MacDonald	*Bellevue Hospital Medical College*, 1869	“
John Griffin	“ “ “ “ 1873	“
† George Washington Hall	*New York Medical Collkge*, 1862	“
John Rutgert Vanderveer	*University City of New York*, 1852	“

CHRONOLOGICAL LIST.

NAME.	GRADUATE OR LICENTIATE OF.	DATE OF MEMBERSHIP.
Henry Fred. Riedel	*University Erlangen, Bavaria*, 1861	1874
Pantaleon Candidus	*College Physicians and Surgeons, N. Y.*, 1872	“
Joseph Hill Hunt	“ “ “ “ “ 1873	“
* Joseph H. Ray	*Lic. Med. Society, Co. New York*, 1831	“
Z. Taylor Emery	*Long Island College Hospital*, 1874	“
Francis H. Stuart	“ “ “ “ 1873	“
† James H Adams	“ “ “ “ 1874	“
Albert J. Leffingwell	“ “ “ “ “	“
† Neilson Abeel Baldwin	*Medical Institution, Yale College*, 1861	“
† Edward Pendleton	*University City of New York*, 1869	“
Charles Zellhoefer	“ “ “ 1873	“
William A. DeLong	“ “ “ 1863	“
John Addison Jenkins	*Bellevue Hospital Medical College*, 1865	“
† Enrique Robio y Diaz	*Central University of Madrid*, 1864	“
John Krauter	*University of Marburg*, 1861	“
Julius C. Rappold	“ *City of New York*, 1861	“
† Arpad G. Gerster	“ *Vienna*, 1873	“
Theodore Frickenstein	*New York Medical College*, 1864	“
* Lathrop A. Willis	*Albany* “ “ 1849	“
George P. Griffing	*Bellevue Hospital Medical College*, 1873	“
George W. Cushing	*Long Island College Hospital*, 1874	“
† Robert T. Edwards	“ “ “ “ “	“
† Henry T. Dillard	“ “ “ “ “	“
* Eugene A. Groux	*University of Goettingen*, 1863	“
† Charles W. Vrooman	“ “ *Michigan*, 1868	1869 *and* 1874
David Howard Cronyn	*Long Island College Hospital*, 1873	1875
William F. Swalm	*College Physicians and Surgeons, N. Y.*, 1859	“
† James Van Brakle	*University City of New York*, 1864	“
† Steadman Pine	*Bellevue Hospital Medical College*, 1874	“
† James G. La Roe, Jr.	“ “ “ “ 1873	“
† L. Preston Ashmead	*College Physicians and Surgeons, N. Y.*, 1874	“
William Ross	*Queen's University, Ireland*, 1874	“
John Harrigan	*Long Island College Hospital*, 1874	“
* N. Gerhard Hutchison	*College Physicians and Surgeons, N. Y.*, 1875	“
† Ernest Hebersmith	“ “ “ “ “ 1871	“
† Arthur Howard McFarland	“ “ “ “ “ 1861	“
† Maximilian Schoepp	*University of Bavaria, Munich*, 1869	“
James Sweeney	*Albany Medical College*, 1859	“
Edwin Augustus Lewis	*Bellevue Hospital Medical College*, 1873	“
George Wieber	*Lic. Medical Society, Co. Kings*, 1875	“
† Nath'l Bryant Colman	*Dartmouth Medical College*, 1865	“
† Henry Jacques Garrigues	*University of Copenhagen*, 1869	“
Jacob Fuhs	*College Physicians and Surgeons, N. Y.*, 1875	“
Benjamin F. Westbrook	*Long Island College Hospital*, 1875	“
Buna Newton	*Bellevue Hospital Medical College*, 1866	“
† Sydney H. Chapin	“ “ “ “ 1873	“

CHRONOLOGICAL LIST.

NAME.	GRADUATE OR LICENTIATE OF.	DATE OF MEMBERSHIP.
Landon Carter Gray	*Bellevue Hospital Medical College*, 1873	1875
* Frederic C. Talcott	*College Physicians and Surgeons, N. Y.*, 1875	"
Charles Fr. Schmidt	" " " " " 1873	"
John Cargill Shaw	" " " " " 1874	"
John Merritt	*Long Island College Hospital*, 1875	"
* George Fletcher	" " " " "	"
James J. Terhune	" " " " "	"
† Edward J. Harvey	" " " " 1874	"
John A. McCorkle	" " " " 1873	"
Mathias Figueira	*College Physicians and Surgeons, N. Y.*, 1872	"
Will. B. Matson	*Bellevue Hospital Medical College*, 1876	1876
Jansen Beemer Mattison	" " " " 1867	"
Henry Lowenstein	*University of Giessen*, 1857	"
† David E. Chace	*Buffalo Medical College*, 1868	"
† A. William Ford	*University City of New York*, 1872	"
† Wm. Hammet Martin	*College Physicians and Surgeons, N. Y.*, 1861	"
† Jacob F. Howe	" " " " " 1871	"
Joseph Healy	" " " " " 1876	"
* Thomas McCosker	" " " " " 1873	"
John Summerfield Andrews	*University City of New York*, 1849	"
Arthur Richards Paine	*College Physicians and Surgeons, N. Y.*, 1875	"
Herbert F. Williams	*University City of New York*, 1873	"
Eugene Livingston Mulligan	*Long Island College Hospital*, 1876	"
† Wm. Henry Bennett.	*University City of New York*, 1870	"
Benj. Mills Briggs	*College Physicians and Surgeons, N. Y.*, 1868	"
† Fred. Marquand Trask	*Bellevue Hospital Medical College*, 1875	"
Samuel Burnett Tuthill	*College Physicians and Surgeons, N. Y.*, 1859	"
† Frank B. Green	" " " " " 1876	"
† Henry J. Hesse	*Long Island College Hospital*, 1876	"
Algernon Thos. Bristow	*College Physicians and Surgeons, N. Y.*, 1876	"
George W. Brush	*Long Island College Hospital*, 1876	"
† Alex. B. Van Wagner	" " " " "	1877
† Theron Tuttle	*College Physicians and Surgeons, N. Y.*, 1854	"
John R. Quinn	*Long Island College Hospital*, 1872	"
Wesley Sherman	" " " " 1876	"
John H. Coverly	*L. R. C. P. and S., Ed.*, 1875	"
† George E Brown	*College Physicians and Surgeons, N. Y.*, 1875	"
† Phœbe J. Ferris	*Woman's Medical College, N. Y.*, 1872	"
Adelbert D. Atwood	*University of Buffalo*, 1872	"
† Edgar F. Peck	*College Physicians and Surgeons, N. Y.*, 1833	"
Verranus Morse	*University City of New York*, 1849	"
† Charles F. Young	*Long Island College Hospital*, 1868	"
† Forest A. Gillen	*University City of New York*, 1877	"
Arnold Stub	*Geneva Medical College*	"
John A. Ray	*College Physicians and Surgeons, N. Y.*, 1874	"
Archibald Campbell	*College Phyicians and Surgeons, N. Y.*, 1871	"

CHRONOLOGICAL LIST.

NAME.	GRADUATE OR LICENTIATE OF.	DATE OF MEMBERSHIP.
* Francis Eskens	*University of Bonn*, 1866	1877
Albert M. Curry	" " *Pennsylvania*, 1875	"
Paul H. Kretzschmar	*Long Island College Hospital*, 1877	"
Gustav Schmetzer	*University City of New York*, 1876	"
† Richard Carson Baker	" " " 1874	1878
Henry Cornelius McLean	" " " 1873	"
Michael Breen	*L. R. C. S., Ed., Queen's University, Ireland*, 1861	"
Charles D Cook	*Vermont Medical College*, 1873	"
† Howard Whiting	*College Physicians and Surgeons, N. Y.*, 1870	"
† Fred. C. Von Weber	*Bellevue Hospital Medical College*, 1875	"
Frank E. West	*Long Island College Hospital*, 1874	"
George Rogers Cutter	*College Physicians and Surgeons, N. J.*, 1861	"
† Ralph L. Parsons	*N. Y. Medical College*, 1857	"
Alex. S. Clark	*College Physicians and Surgeons, N. Y.*, 1876	"
J. Fred. Moore	*University City of New York*, 1861	"
† Geo. F. Ketcham	*Long Island College Hospital*, 1874	"
† Arthur Hyatt Clark	*College Physicians and Surgeons, N. Y.*, 1877	"
Henry W. Rand	*Bellevue Hospital Medical College*, 1877	"
George W. Welty	" " " " 1870	"
† S. Oscar Myers	*Albany Medical College*, 1874	"
John Becker	*New York* " " 1855	"
Edwin Reynolds	*College Physicians and Surgeons, N. Y.*, 1877	"
† Frank M. Hoyt	*Bellevue Hospital College*, 1877	"
Andrew J. Dower	" " " 1878	"
Herbert C. Rogers	" " " 1878	"
Thos. M. Rochester	*University of Buffalo*, 1878	"
John E. Richardson	*College Physicians and Surgeons, N. Y.*, 1877	"
* Albert Furgang	*University City of New York*, 1861	"
† Jared Wilson	*College Physicians and Surgeons, N. Y.*, 1877	1878
†Herman Hardrich	*University City of New York*, 1876	"
†Jos. Alfred Carreau	*Victoria University, Montreal*, 1875	"
† George W. Duryee	*College Physicians and Surgeons, N. Y.*, 1876	"
Thomas A. Joye	" " " " *Balto.*, 1878	"
John N. Farrar	*Jefferson Medical College*, 1874	1879
† Edward P. Smith	*College Physicians and Surgeons, N. Y.*, 1875	"
† Henry G. Small	" " " " " 1878	"
† Guy D. Daly	*McGill University*, 1878	"
Benjamin Ayres	*University City of New York*, 1872	"
† Kate C. Woodhull	*Woman's Medical College, N. Y. Infirmary*, 1873	"
† Edwin F. Linridge	*Bellevue Hospital Medical College*, 1875	"
George R. Westbrook	*Long Island College Hospital*, 1878	"
† M. Louise Rice	*University of Michigan*, 1878	"
Joseph M. Harcourt	" *City of New York*, 1874	"
Jeremiah J. Corcoran	" " " 1875	"
† W. E. Beardsley	*Bellevue Haspital Medical College*, 1876	"
William A. Little	*University City of New York*, 1878	"

CHRONOLOGICAL LIST.

NAME.	GRADUATE OR LICENTIATE OF.	DATE OF MEMBERSHIP.
† Oliver J. D. Hughes	*Long Island College Hospital,* 1876	1879
George Drury	" " " " 1871	"
Henry F. W. Risch	*Bellevue Hospital Medical College,* 1879	"
Walter B. Chase	*Medical Department, Bowdoin College,* 1867	"
† W. Scott Smith	*Long Island College Hospital,* 1878	"
† Edward F. Mordough	" " " " "	"
† Robert B. Welton	*Harvard University,* 1868	"
† Charlotte W. Ford	*Woman's Medical College, N. Y. Infirmary,* 1873	"
Harlin H. Pillsbury	*Harvard University,* 1859	"
William B. Hewett	*College Physicians and Surgeons, N. Y.,* 1877	"
James S. King	*Long Island College Hospital,* 1878	"
† John Schoolcraft Perry	*College Physicians and Surgeons, N. Y.,* 1877	"
Fidelio B. Gilette	*University of Pennsylvania,* 1856	"
† Joseph Creamer	*College Physicians and Surgeons, N. Y.,* 1850	"
James F. Feeley	*University City of New York,* 1866	"
† George W. Newman	" " " 1864	"
John E. Wade	" " " 1871	"
† John F. Valentine	*College Physicians and Surgeons, N. Y.,* 1879	"
Charles A. Limeburner	" " " " " "	"
Joseph H. Hillyer	*University City of New York,* 1876	"
Edward A. Wheeler	*Bellevue Hospital Medical College,* 1879	"
† Theodore A. Van Duzee	*University City of New York,* 1873	"
Wilbur Fisk Sanford	" " " 1867	1871 *and* "
† Frank Madden	*Long Island College Hospital,* 1879	"
Lucius Barstow Irish	*Bellevue Hospital Medical College,* 1862	"
John J. Gleavy	" " " " 1872	"
† Joseph Meyer	*College Physicians and Surgeons, N. Y.,* 1877	"
† Carl A. Zeppenfeldt	*Bellevue Hospital Medical College,* 1879	1880
Ernest Palmer	*College Physicians and Surgeons, N. Y.,* 1879	"
* George H. Atkinson	*Long Island College Hospital,* 1873	"
Charles E. De La Vergne	" " " " 1878	"
Eugene J. Carolan	*Bellevue Hospital Medical College,* 1878	"
Benj. Sturgis Van Zile	" " " " 1875	"
Jesse B. Lung	*College Physicians and Surgeons, Keokuk, Iowa,* 1877	"
† Arthur M. Burns	*Bellevue Hospital Medical College,* 1870	"
S. J. Sorensen	*Copenhagen, Denmark,* 1871	"
† Thomas Gallahan	*Bellevue Hospital Medical College,* 1879	"
† George P. Oliver	*University Pennsylvania,* 1861	"
Joseph M. Raub	" " 1874	"
P. J. Prendergast	*Jefferson Medical College,* 1873	"
† William Walnworth	*Bellevue Hospital Medical College,* 1878	"
† William E. Conroy	*College Physicians and Surgeons, N. Y.,* 1880	"
‡ Robert F. Davidson	*Bellevue Hospital Medical College,* 1877	"
† Adolphus G. Meyersburg	*University of New York,* 1875	"
† August W. Reimer	" " *Gottingen,* 1860	"
Charles H. Johnson	" " *New York*	"

CHRONOLOGICAL LIST.

NAME.	GRADUATE OR LICENTIATE OF.	DATE OF MEMBERSHIP.
Lucian T. Bell	*Long Island College Hospital*, 1880	1880
† Alfred P. Hougton	*College Physicians and Surgeons, N. Y.*, 1880	"
George McNaughton	*Bellevue Hospital Medical College*, 1878	"
John S. Smold	" " " "	"
George W. Wells	" " " "	"
† Charles L. Hogeboom	*College of Physicians and Surgeons, N. Y.*	"
Joseph A. Keene	*University of New York*, 1881	"
Henry L. Cochran	*Long Island College Hospital*, 1879	1881
George A. Schwartzenberg	*University of Giessen*, 1851	"
J. E. Smith	*Jefferson Medical College*	"
† Harriet F. Pillsbury	*Medical College, N. Y. Infirmary*	"
Annie M. Brown	" " " "	"
Francis H. Miller.	*University City of New York*	"
David Fletcher Lucas	*College Physicians and Surgeons, N. Y.*, 1880	"
Henry Arnold Fairbairn	" " " " " 1878	"
† Aaron E. Peck	" " " " " 1883	"
John C. Schapps	*Bellevue Hospital Medical College*	"
Edgar Ettinge	*College Physicians and Surgeons, N. Y.*	"
† M. W. Barnhardt	*University City of New York*, 1879	"
C. Eugene Gunther	*Long Island College Hospitdl*, 1880	"
† George W. Duryee	*College Physicians and Surgeons, N. Y.*, 1876	"
Josephine A. Dupre	*Woman's College, N. Y. Infirmary*, 1880	"
† Harry Plymptom	*Long Island College Haspital*, 1880	"
† E. H. Squibb	*College Physicians and Surgeons, N. Y.*, 1881	"
† Frank A. Cowles	*University City of New York*, 1881	"
Elias H. Bartley	*Long Island College Hospital*, 1879	"
Frank R. Newman	*Bellevue Hospital Medical College*	"
Edward Grether	*University Wurzburg*, 1869	"
Louis Fernandez Criado	*College Physicians and Surgeons, N. Y.*, 1879	"
H. B. Bayles	" " " " "	"
† Henry W. Burnard	" " " " " 1877	"
† F. M. Thomas	*Bellevue Hospital Medical College*	"
† Frederick Fuller	*Medical Department, Harvard University*, 1879	"
William Moitrier	*Long Island College Hospital*, 1881	"
† H. Wilfred Norton	*College Physicians and Surgeons, N. Y.*, 1880	"
John A. Cochran	" " " " " 1881	"
Crawford D. Beasley	*Long Island College Hospital*, 1879	"
† Charles Goodspeed	*Dartmouth Medical College*, 1880	"
Henry McHatton	*Bellevue Hospital Medical College*, 1878	1882
Anna A. Forrest	*Medical College, New York Infirmary*, 1880	"
W. J. Cruikshank	*University City of New York*, 1880	"
† David C. Lewis	" *of Michigan*, 1881	"
† Daniel K. Drake	*Long Island College Hospital*, 1880	"
† William B. Mathewson	" " " " 1881	"
† A. H. P. Leuf	" " " " "	"
† Alex. F. Horton	" " " " 1881	"

CHRONOLOGICAL LIST.

NAME.	GRADUATE OR LICENTIATE OF.	DATE OF MEMBERSHIP.
Jacob Nehrbas	*College Physicians and Surgeons, N. Y.*, 1883	1882
James Watt Flemming	*Long Island College Hospital*, 1880	"
† Preston Sheldon	*College Physicians and Surgeons, N. Y.*, 1877	"
Washington J. Brandt	" " " " " 1880	"
William E. Spencer	*Long Island College Hospital*, 1881	"
William M. Thallon	*College Physicians and Surgeons, N. Y.*, 1880	"
† H. A. Bunker	*Medical College, Ohio*, 1876	"
† Frederick A Baldwin	*Bellevue Hospital Medical College*, 1881	"
† John Mears	*Licentiate Med. Soc. County of Kings*, 1878	"
† J. A. Sherfy	*Long Island College Hospital*, 1861	"
Mary S. Williams	*Medical College, New York Infirmary*, 1880	"
E. J. Chapin Minard	*Woman's College of Pennsylvania*, 1866	"
† Charles S. Allabur	*Long Island College Hospital*, 1881	"
T. C. Giroux	*University City of New York*, 1869	"
John C. Lester	*Long Island College Hospital*, 1879	"
† Arthur J. Wolff	*Texas Medical College and Hospital*, 1876	"
† Almon S. Allen	*Albany Medical College*, 1872	"
† Augustin M. Fernandez	*University City of New York*, 1881	"
James L. Kortwright	*College Physicians and Surgeons, N. Y.*, 1881	"
† Thomas J. Wheiden	*University of Maryland*	"
John Rankin	*Long Island College Hospital*, 1882	"
Robert Scrimgrour	" " " " 1881	"
George R Barns	" " " " 1882	"
David Myerle	" " " " "	"
Robert L. Dickinson	" " " " "	"
James McManus	" " " " 1881	"
† Isaac Hull Platt	" " " " 1882	"
Francis A. Schlitz	*University City of New York*, 1878	"
Frank H. Ross	*Bellevue Hospital Medical College*, 1880	"
Frank Le Roy Tetamore	*Long Island College Hospital*, 1882	"
Glen R. Butler	" " " " "	"
Agnes Sparks	*University of California*, 1879	"
James C. Kennedy	*Bellevue Hospital Medical College*, 1882	"
† Henry C. Murphy	*Long Island College Hospital*, 1882	"
Edward H. Knight	" " " " "	"
† John Bowen	*Bellevue Hospital Medical College*	"
James A. Blake	*College Physicians and Surgeons, N. Y.*, 1869	"
William A. Northridge	*Long Island College Hospital*, 1882	"
† Stuart H. Burton	*University of Buffalo*, 1870	"
† J. F. McEttrick	*Long Island College Hospital*, 1880	"
Louis DeB. Kuhn	*University of Pennsylvania*, 1854	1883
William F. Millington	*University City of New York*, 1877	"
Thomas M. Lloyd	" *of Pennsylvania*, 1876	"
Norris M. Carter	*Albany Medical College*, 1859	"
Frank Little	*Wooster University*, 1881	"
† W. A. Pierrpont	*University City of New York*, 1882	"

CHRONOLOGICAL LIST.

NAME.	GRADUATE OR LICENTIATE OF.	DATE OF MEMBERSHIP.
John F. O'Connell	*Bellevue Hospital College*, 1878	1883
Susan R. Pray	*Medical College, New York Infirmary*	"
Lauren M. Allen	*College Physicians and Surgeons, N. Y.*	"
Emilio Buchacca	*Long Island College Hospital*, 1881	"
William M. Hutchinson	" " " " "	"
Leonard C. McPhail	*University City of New York*, 1877	"
* Jeremiah E. Baker	*Long Island College Hospital*	"
S. H. Northridge	" " " " 1876	"
† Willard Parker Beach	*College Physicians and Surgeons, N. Y.*	"
David Rollins Brown	*Bellevue Hospital Medical College*	"
J. McFarland Winfield	" " " "	"
Frederick A. Jewett	*Long Island College Hospital*, 1883	"
Jose J. Luis	*University City of New York*, 1872	"
William Schroeder	*Long Island College Hospital*, 1881	"
L. Chapman Smith	*University City of New York*, 1878	"
Ralph M. Mead	*Long Island College Hospital*, 1882	"
Stuart O. Hector	*Bellevue Hospital Medical College*, 1878	"
† William J. Doyle	*Jefferson Medical College*, 1881	1884
† Charles C. Partridge	*University City of New York*	"
Oswald Joerg	*Leipsig, Germany*, 1870	"
J. C. MacEvitt	*College Physicians and Surgeons, N. Y.*, 1878	"
William Browning	*Leipsig, Germany*, 1881	"
Emmett D. Page	*Long Island College Hospital*, 1882	"
† Phœbe A. T. Williamson	*Medical College, New York Infirmary*, 1879	"
Charles C. Henry	*Long Island College Hospital*, 1883	"
Lucy M. Hall	*University of Michigan*, 1878	"
Eliza M. Mosher	" " 1875	"
A. Sidney Leonard	*College Physicians and Surgeons, N. Y.*, 1866	"
† Anthony J. Burger	*University of Pennsylvania*, 1883	"
Herman T. Bender	*Freiburg, Germany*	"
† Stephen A. Welsh	*Harvard*, 1884	1885
† C. O. H. Steinke	*Bellevue Hospital Medical College*	"
Gordon R. Hall	*College Physicians and Surgeons, N. Y.*, 1880	"
T. W. Topham	" " " " *Ind.*	"
† John J. Prendergast	" " " " 1868	"
† Augusta A. Field	*Medical College, New York Infirmary*, 1883	"
Frances V. C. Fuller	" " " " 1884	"
Samuel T. King	*College Physicians and Surgeons, N. Y.*, 1883	"
Henry T. Halleck	*Long Island College Hospital*, 1883	"
William H. Kretzschmar	*Wurzburg, Germany*	"
Daniel M. Wooley	*University City of New York*	1884
James W. Ingalls	*College Physicians and Surgeons, N. Y.*, 1884	"
Chauncey B. Fowler	*Long Island College Hospital*	"
C. P. Gildersleeve	*College Physicians and Surgeons, N. Y.*	"
Frederick Weygandt	" " " " "	"
William B. Lane	*Bellevue Hospital Medical College*	"

CHRONOLOGICAL LIST.

NAME.	GRADUATE OR LICENTIATE OF.	DATE OF MEMBERSHIP.
Cornelius Hoagland	*Cleveland Medical College*	1885
Thomas H. A. Loughran	*Bellevue Hospital Medical College*	“
Justo del Risco, Jr	*College Physicians and Surgeons, N. Y.*	1886
William N. Belcher	*Long Island College Hospital*, 1884	“
Alex. J. McCatty	“ “ “ “	“
John C. Vanderveer	“ “ “ “	“
August B. Ritter	“ “ “ “	“
John H. Droge	*Bellevue Hospital Medical College*, 1884	“
J. Arundel John	*Long Island College Hospital*	1886
Sheridan Hendrickson	*University City of New York*	“
J. Ernest Schroeder	*Long Island College Hospital*	“
John B. Bogart	*University City of New York*	“
John M. Peacock	*College Physicians and Surgeons, N. Y.*	“
George E. Law	*Jefferson Medical College*	“
Edward Parkes	*Bellevue Hospital Medical College*	“
John H. Trent	*Long Island College Hospital*	“
Edward P. Crowell	“ “ “ “	“
Edwin A. Hatch	“ “ “ “	“
Jerome G. Atkinson	*University City of New York*	“
Frank P. Hudnut	*Bellevue Hospital Medical College*	“
John E. W. Sanderson	*College Physicians and Surgeons, N. Y.*	“
F. Percy Jenks	*Long Island College Hospital*	“
Joshua M. Van Cott, Jr	“ “ “ “	1887
Chas. N. Cox	*University Pennsylvania*	“
Chas. M. Bellows	*Bellevue Hospital Medical College*	“
Malcom E. Parrott	*Jefferson Medical College*	“
Rev. E. P. Thwing, Ph.D.	*Long Island College Hospital*, 1886.	“
Walter J. Corcoran	*College Physicians and Surgeons, N. Y.*	“
Fred. D. Bailey	*University City of New York*	“
J. Y. Tuthill	*Bellevue Hospital Medical College*	“
H. S. Gilbert	*Universily City of New York*	“
Seth D. Boggs	*Bellevue Hospital Medical College*	“
Nelson L. North, Jr	*College Physicians and Surgeons, N. Y.*	“
George W. White	*University City of New York*	“
John Rundell	*Long Island College Hospital*	“
Richmond Lennox	*College Physicians and Surgeons, N. Y.*	“
John L. Macumber	*Long Island College Hospital*	1888
Mary A. Wattles Faunce	*Medical College, N. Y. Infirmary*	“
Maurice Enright	*College Physicians and Surgeons, N. Y.*	“
Eugene Hodenpyl	“ “ “ “ “	“
Henry D. White	“ “ “ “ “	“
William E. Stratton	*Harvard*	“
Robert G. Eccles	*Long Island College Hospital*	“
Frank W. Shaw	*University City of New York*	“
Edward S. Rupert	*Jefferson Medical College*	“
Onslow A. Gordon	*Dartmouth* “ “	“

CHRONOLOGICAL LIST.

NAME.	GRADUATE OR LICENTIATE OF	DATE OF MEMBERSHIP.
Chas. A. Canfield	*University City of New York*, 1886	“
Arthur C. Brush	*College Physicians and Surgeons, N. Y.*, 1884	“
Edgar A. Day	*Long Island College Hospital*, 1887	“
Henry B. Reid	*University of Pennsylvania*, 1873	“
Harrison A. Tucker, Jr.	*Long Island College Hovpital*, 1888	“
Henry P. Dawe	*University City New York*, 1886	“
Charles H. Shepard	*Thirteenth St. Med. College, N. Y.*, 1859	“
J. Lester Carney	*Long Island College Hospital*	“
David C. Holton	*Bellevue Hospital Medical College*, 1886	“
G. Newton Ferris	*Long Island College Hospital*, 1879	“
Benj. Burroughs	“ “ “ “ 1888	“
Eliot Gorton	“ “ “ “ “	“

* Deceased. † Removed. ‡ Expelled.

HONORARY MEMBERS.

Samuel Osborn, of New York City	1827
A. B. Cooke, Surgeon U. S. N	1827
Richard Pennell, of New York City	1829
Alexander E. Hosack, of New York City	1832
Sir James Y. Simpson, of Edinburgh	1868
J. Marion Sims, of New York City	1868

◆

LICENTIATES.

Nelson A. Garrison	1824
Joseph N. Smith	1827
John Fred. Sickels	1827
Hartshorne Gregory	1829
Wm. A. Clarke	1832
Henry A. Ruding	1832
Philip Harvey	1833
John V. E. Vanderhoef	1833
Stephen M. Disbrow	1834
Henry J. Cullen	1843
Nelson J. Tucker	1848
John Van Ness	1852
William H. Van Duyne	1857
George Wieber	1875
John Mears	1878
W. E. Conroy	1879

PRESIDENTS.

Cornelius Low	1822 to 1825
Joseph G. T. Hunt	1825 to 1833
Thomas W. Henry	1831 to 1833
Charles Ball	1833 to 1835
Isaac I. Rapelye	1835
Matthew Wendell	1836
Adrian Vanderveer	1837, 1838
John B. Zabriskie	1839
Purcell Cooke	1840, 1841
Theo. L. Mason	1842, 1843
Bradley Parker	1844
Purcell Cooke	1845
J. Sullivan Thorne	1846
Lucius Hyde	1847
Chauncey L. Mitchell	1848
Henry J. Cullen	1849
James H. Henry	1850
Samuel J. Osborn	1851
George Marvin	1852
Andrew Otterson	1853, 1854
George I. Bennet	1855
T. Anderson Wade	1856
Samuel Boyd	1857
Chauncey L. Mitchell	1858, 1859
Daniel Brooks	1860
Chris. R. McClellan	1861
Samuel Hart	1862
Dewitt C. Enos	1863
Joseph C. Hutchison	1864
John T. Conkling	1865
Andrew Otterson	1866
William W. Reese	1867
R. Cresson Stiles	1868, 1869
J. H. Hobart Burge	1870, 1871
Wm. Henry Thayer	1872, 1873
Alex. J. C. Skene	1874, 1875
Alexander Hutchins	1876, 1878
J. S. Prout	1879
Charles Jewett	1880, 1882
George G. Hopkins	1883
John A. McCorkle	1884, 1885
George R. Fowler	1886
William Wallace	1887, 1888

BY-LAWS OF THE MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Amended and Adopted January 17th, 1888.

CHAPTER I.

TITLE, OFFICERS, AND MEETINGS OF THE SOCIETY.

SECTION 1. This Society shall be called "THE MEDICAL SOCIETY OF THE COUNTY OF KINGS." It shall consist of Resident, Non-resident, and Honorary Members.

SEC. 2. The officers of the Society shall be a President, a Vice-President, a Secretary, an Assistant Secretary, a Treasurer, a Librarian, and five Censors, who shall be elected by ballot, by a majority vote, at the annual meeting, and five Trustees, to be elected in the manner hereinafter provided.

SEC. 3. Stated meetings shall be held on the third Tuesday of each month—that in January shall be the annual meeting. Of these meetings notice shall be given to each member whose name appears on the "List of Active Members." The meetings in July and August may be omitted by vote of the Society.

SEC. 4. Special meetings may be called by the President at his discretion, and he shall call them at the request, in writing, of five members, of which due notice shall be given as provided for in the case of stated meetings.

SEC. 5. Nomination for officers and delegates shall be made at the December meeting. The Secretary shall have the names of all nominees printed on slips of paper, two of which shall be sent to each active member with the notice of the annual meeting. If, at any election, more than one balloting for any officer be required to elect, the name of the candidate having the fewest votes shall be withdrawn after each balloting.

SEC. 6. Ten members shall form a quorum for the transaction of business; but for scientific and literary purposes, a quorum shall always be presumed, unless an actual count be called for.

CHAPTER II.

ORDER OF BUSINESS AND RULES OF ORDER.

SECTION 1. At each monthly meeting, after the presiding officer shall have called the Society to order, the following shall be the Order of Business:

1. Reading of the Minutes.
2. Report of Council on the election of members. Chap. xiii., sec. 3.
3. Applications for Membership. Chap. xiii., sec. 1.
4. Communications, discussions, reading of papers and presentation of specimens, in the order directed by the presiding officer; at the December meeting, nominations for officers and delegates, and reading of amendments to the By-Laws. Chap i., sec. 5; chap. xviii., sec. 1.
5. Report of scientific and other committees.
6. Unfinished business.
7. New business.

SEC. 2. At the annual meeting, the following shall be the Order of Business.

1. Reading of the Minutes.
2. Report of Council on the election of members. Chap. xiii., sec. 3.
3. Application for Membership. Chap. xiii,, sec. 1.
4. Report of Secretary. Chap. v., sec. 4, and chap. x., sec. 5.
5. Report of Treasurer on Membership. Chap. vii., sec. 5; chap. xii., sec. 6, 7.
6. Election of Officers and Delegates.
7. Reading of the Journal of the Council. Chap. x., 5.
8. Report of Trustees. Chap. x., sec. 9.
9. Report of Treasurer on Finances. Chap. vii., sec. 4.
10. Report of the Librarian. Chap viii.
11. Amendments to By-Laws. Chap. xviii., sec. 1.
12. Reports of Standing Committees on Membership.

SEC. 3. At special meetings, the minutes of previous meetings may be read so far as they relate to the object for which the meeting was convened, and no further; and business not specified in the notice sent to members, shall not be transacted.

SEC. 4. Vacancies in any of the offices or delegations of the Society may be filled by vote at any stated meeting.

SEC. 5. The following shall be the Rules of Order of this Society:

1. Any member who may speak on any subject or question before the Society, shall rise and address the President.

2. Every member shall have the privilege of speaking twice on any question under consideration, but not oftener, unless by permission of the Society,

3. Any member called to order while speaking, shall sit down, and the debate be suspended until the point of order is settled.

4. All questions of order shall be decided by the Chair, subject to an appeal, which shall be determined by vote, without debate.

5. All resolutions and amendments shall be offered in writing when required by any member.

6. No motion or resolution shall be considered unless seconded; nor question, unless stated by the President.

7. When a question is under debate, no motion shall be received but to adjourn, to lay on the table, for the previous question, to postpone, to refer or to amend; which several motions shall have precedence in the order in which they are here arranged. The first three shall be decided without debate.

8. When a blank is to be filled, the question shall be first taken on the highest number, the greatest sum, or longest time proposed.

9. Any member may call for a division of a question, when the sense will admit of it.

10. The yeas and nays on any question when called for by five members present, shall be taken without debate and recorded on the minutes.

11. After any question has been decided, except one of indefinite postponement, any two members who voted in the majority, may, at the same or next stated meeting, move for a reconsideration thereof; without which, no discussion shall be allowed.

12. All questions of order, not provided for by these rules, shall be determined by porliamentary usage.

CHAPTER III.

PRESIDENT.

SECTION 1. It shall be the duty of the President to preside at all meetings of the Society; to call the meetings to order at the appointed time, and to preserve order and decorum. He may dissolve any meeting that may become disorderly.

SEC. 2. He shall perform the duties prescribed by the Statutes, By-Laws and Resolutions of the society.

SEC. 3. He may deliver an inaugural address at the meeting in April.

SEC. 4. He shall appoint all committees not otherwise ordered by special resolution.

SEC. 5. He shall take the sense of the Society on every motion made and seconded, and declare the result.

SEC. 6. He, or any member who may preside, shall have no vote, except on questions where there is an equal division of voices, and except at elections.

SEC. 7. He shall confer a diploma of license on such persons as are certified by the Censors to be qualified for the practice of physic and surgery, on receiving for such diploma the sum of five dollars for the use of the Society.

SEC. 8. He shall pay to the Treasurer all moneys he may receive for the use of the Society.

SEC. 9. He shall keep on file all documents and certificates in relation to the Society, which are by law deposited with him; and these shall be delivered to his successor.

SEC. 10. It shall be his duty to procure papers, communications, etc., on scientific subjects, for presentation and discussion at the stated meetings of the Society.

CHAPTER IV.

VICE-PRESIDENT.

The Vice-President, in the absence of the President, shall preside, and perform the duties of the President

CHAPTER V.

SECRETARY.

SECTION 1. The Secretary shall perform the duties directed by the Statutes, the By-Laws and Resolutions of the Society.

SEC. 2. He shall keep in his book a full and distinct record of all the transactions of the Society, and a chronological list of all the members.

SEC. 3. He shall inform all persons admitted to membership of their election, and notify them to call upon him, pay the initiation fee, and sign the By-Laws; and he shall report at the annual meeting the names of all the members elect who have neglected or refused to do so in accordance with the regulations of the Society,

SEC. 4. He shall permit no member-elect to sign the By-Laws of the Society until the initiation fee be paid.

SEC. 5. He shall issue to any new member desiring it, a certificate of membership signed by the President; but this certificate shall not be duplicated without the consent of the Council.

SEC. 6. He shall conduct the correspondence of the Society. He shall retain copies of all letters written by him in behalf of the Society, and preserve on file all letters and communications received by him in his official capacity, and report the same at each stated meeting.

CHAPTER VI.

ASSISTANT SECRETARY.

The Assistant Secretary shall issue notices of all meetings of the Society, assist the Secretary in the discharge of his duties, and in his absence perform them.

CHAPTER VII.

TREASURER.

SECTION 1. The Treasurer shall perform the duties directed by the Statutes, the By-Laws and Resolutions of the Society.

SEC. 2. It shall be the duty of the Treasurer to present a bill of the annual dues to each member every year, showing all arrearages, and to demand payment of the same, at least twice, while unpaid, during the year in which such bill may have been rendered. For this purpose, the Treasurer is authorized to have the necessary blank printed, and to employ a competent collector.

SEC. 3. On the written approval of the Chairman of the Board of Trustees, he shall pay all bills of the Society as they become due.

SEC. 4. He may, with the consent of the Council, compromise the indebtedness of members in arrears to the Society.

SEC. 5. He shall render an account, at every annual meeting, of all the moneys received and expended by him, and of all balances remaining in his hands, and state what assessment will be necessary to cover the expenses of the ensuing year.

SEC. 6. He shall report to the Society, at the annual meeting, the names of those on the "List of Active Members," and of those in arrears with the Treasurer, and of those suspended for unpaid dues.

CHAPTER VIII.

LIBRARIAN.

The Librarian shall have charge of all books, pamphlets, manuscripts, anatomical or pathological specimens, apparatus, instruments, medals, coins, or scientific property of whatever kind, and affix to each donation the name of the donor; keep a catalogue; observe such rules as shall be prescribed by the Council for the regulation of his department, and render a full account thereof, at least once a year, and oftener if required.

CHAPTER IX.

CENSORS.

SECTION 1. The Censors shall perform the duties prescribed by the Statutes, the By-Laws and Resolutions of the Society.

SEC. 2. In the absence of the President and Vice-President, the senior Censor shall preside.

SEC. 3. The seniority of the Censors shall be determined by the Censors themselves, immediately after their election, and notice thereof shall be given to the President and Secretary.

SEC. 4. The Censors shall examine the credentials and investigate the professional and personal character of each candidate for admission to membership, and shall report thereon to the Council as soon as practicable.

SEC. 5. They shall examine all applicants for license to practice physic any surgery, who have complied with the requisitions of the Statutes of the State, and the By-Laws of the Society; and shall give to those qualified a certificate to that effect, addressed to the President.

SEC. 6. Three Censors shall constitute a quorum for ordinary business.

CHAPTER X.

TRUSTEES.

SECTION 1. The Board of Trustees shall consist of seven members, viz.: The President and Treasurer ex-officio and five members of the Society.

SEC. 3. The five Trustees shall be elected by a two-thirds vote of the members present to serve as they shall elect as follows:

One for five years.
One for four years.
One for three years.
One for two years.
One for one year.

And hereafter at each annual meeting a Trustee shall be elected to serve for five years.

SEC. 3. In the event of the death or resignation of one of the Trustees, the Council shall have power to fill the vacancy for the unexpired term of such Trustee.

SEC. 4. The Trustees shall have charge of all the real and personal estate of the Society.

Sec. 5. It shall be the duty of the Trustees to supervise and direct the Treasurer in the investment of the funds of the Society, and to report the investments and the condition of the funds and property aforesaid to the Council when required and annually to the Society. All funds and property shall be used only as specified by the donors, and as provided by the charter. No money shall be paid excepting on the order of the Trustees. All checks and all orders withdrawing deposits from any bank, trust company, or money institution, shall be signed by the Treasurer, only on the written order of the Chairman of the Board of Trustees.

Sec. 6. The Board of Trustees may make rules and regulations for its own government consistent with the By-Laws of the Society. A journal of the proceedings of the Trustees' meetings shall be kept, together with the names of the attending and absent members, and an abstract of the same presented as a part of the report of the Trustees, at the annual meeting of the Society.

CHAPTER XI.

THE COUNCIL.

Section 1. The officers of the Society shall constitute the Council.

Sec. 2. The Council shall meet on the Wednesday preceding each annual and stated meeting of the Society.

Sec. 3. The President may call a meeting of the Council whenever he may deem it necessary.

Sec. 4. Five members shall constitute a quorum for the transaction of business.

Sec. 5. The journal of the proceedings of the Council shall be kept by the Secretary, and read at each annual meeting, together with the names of the attending and absent members; and if it shall appear that any member has been absent from three stated meetings in succession, without having assigned a satisfactory reason, he shall be ineligible to office for the ensuing year.

Sec. 6. The Council shall make the necessary arrangements for the meetings of the Society, and execute such other duties as the Society may direct. Its action shall at all times be subject to the approval of the Society.

Sec. 7. The Council may make rules and regulations for its own government, consistent with the By-Laws of the Society.

Sec. 8. It shall be the duty of the Counci[illegible]take cognizance of breaches of the precepts of medical ethics, which shall be laid before it, and it may report the results of its proceedings thereon to the Society, if it think proper.

CHAPTER XII.

DELEGATES.

Section 1. The Delegates shall perform the duties required by the Statutes of the State, and support the honor and dignity, and obey the orders and resolutions, of the Society.

Sec. 2. Any member elected as Delegate to the Medical Society of the State of New York, who shall be unable to act as Delegate during two successive years, shall be considered to have vacated his position as Delegate.

CHAPTER XIII.

RESIDENT AND NON-RESIDENT MEMBERS.

Section 1. The resident members shall consist of physicians and surgeons only.

Sec. 2. It shall be the duty of every member to observe the codes of medical ethics adopted by this Society.

Sec. 3. At each meeting of the Society, the members, on entering, shall write their names in a register provided for this purpose by the Secretary; and no member shall vote at any election until he has complied with this regulation.

Sec. 4. Every member shall observe order and decorum in the meetings, and pay due respect to the officers and members.

Sec. 5. Members who shall not have paid the annual dues for two years in succession, after having been twice, in each year, called upon to do so, are declared to be "in arrears with the Treasurer," and their names shall appear on his list of members suspended for unpaid dues.

Sec. 6. Members "in arrears with the Treasurer" shall neither be eligible to office, nor entitled to vote at any annual meeting; neither shall they be entitled to the privilege of being notified of the meetings, nor of receiving publications from, or through, the Society.

Sec. 7. Any member who shall continue "in arrears with the Treasurer" for one year, after having twice received due notice of the existence of this By-Law and of the amount due from him, shall be no longer considered a member; and he shall not be re-instated except in conformity with Chapter XIV. of these By-Laws, after the payment of all arrears, unless the Society shall by special vote of two-thirds of those present at a special meeting, otherwise determine.

Sec. 8. Any member, not in arrears with the Society, who may permanently remove from the County of Kings, shall be known as Non-Resident Member. Such member shall not be required to contribute to the funds of the Society, neither shall he vote, be eligible to any office or appointment, nor receive notices or publications from or through the Society; but, in all other respects, shall enjoy every right and privilege of a resident member. A non-resident member, on returning to the County, shall become an active member on payment of the dues for the current year.

CHAPTER XIV.

ADMISSION OF MEMBERS.

SECTION 1. Applications for membership shall be made at the stated meetings.

SEC. 2. The documents and testimonials relative to a candidate's professional and personal qualifications shall be given to the Censors, whose duty it shall be to examine all such credentials and report thereon to the Council. Upon the report thus presented, the Council shall accept or reject the candidate.

SEC. 3. If the candidate be accepted, the Council shall so report to the Society at a stated meeting, and after the next succeeding stated meeting, the President shall declare said candidate a member—provided, however, that before this declaration is made, any member may demand (in writing, if not present) a ballot on the candidate's election. An affirmative vote of two-thirds of all the members present shall be necessary to elect.

SEC. 4. Every person thus admitted, shall, within three months after due notification of his election, pay an initiation fee of five dollars (which shall relieve him from any further assessment until the next annual meeting), sign the By-Laws, giving his age, place of birth, and the name of the institution whence he graduated, or forfeit his election.

CHAPTER XV.

ETHICS AND DISCIPLINE.

SECTION 1. The precepts of the Codes of Medical Ethics of the American Medical Association, and of the Medical Society of the State of New York, shall be binding on the members of this Society, and any disregard or violation thereof shall be cause for investigation.

SEC. 2. The Council shall take cognizance of all complaints of breaches of the Code of Ethics, which may be laid before it, and endeavor to reclaim offenders, before proceeding formally against them.

SEC. 3. Charges (with specifications) of the violation of the laws or ethics of the Society, or immoral conduct, shall be presented in writing to the President, enclosed in a sealed envelope, with the words "Charges against a member" written upon it.

SEC. 4. The President, on receiving such charges, shall notify the Council to meet and examine the same, and the evidence thereon.

SEC. 5. If a majority of the Council shall be of opinion that the charges are well founded, they shall serve a copy of them upon the accused, and cause a special meeting of the Council to be called to investigate them; of which meeting the accused shall have at least ten days' notice, in writing, with an invitation to be present.

SEC. 6. After the investigation of charges, the Council may, at its option, drop them, or report them to the Society and recommend some definite action thereon.

SEC. 7. Discipline by the Society may be of three kinds: Admonition, Suspension, and Expulsion, and shall require the affirmative vote of two-thirds of all the members present, when such action has been recommended by the Council, or of three-fourths when not recommended by the Council.

CHAPTER XVI.

ASSESSMENTS.

SECTION 1. The Society, at the Annual Meeting, shall order such assessments on the Resident Members as shall meet its requirements.

SEC. 2. The annual assessment shall be due at the beginning of the year for which it is voted.

CHAPTER XVII.

HONORARY MEMBERS.

SECTION 1. Honorary members may be nominated at any stated meeting, and elected by a two-thirds vote at any subsequent stated meeting.

SEC. 2. Not more than three honorary members shall be annually elected.

SEC. 3. Honorary members may take part in debate, but shall not be entitled to vote.

CHAPTER XVIII.

LICENTIATES.

(The law conferring the power upon medical societies to grant licenses having been repealed, this chapter of the By-Laws has been omitted by the committee).

CHAPTER XIX.

AMENDMENTS, &C.

SECTION 1. Amendments proposed to these By-Laws can only be adopted at annual meetings. They shall be proposed in writing at any previous stated meeting, and the concurrent vote of two-thirds of the members present shall be necessary for their adoption. At the December meeting, all proposed amendments shall be read to the Society.

SEC. 2. At any stated meeting, any By-Law may be suspended for any length of time short of the next annual meeting of the Society, by the concurrent vote of three-fourths of the members present, the motion to that effect being presented in writing.

THE

BROOKLYN MEDICAL JOURNAL.

PUBLISHED MONTHLY BY THE MEDICAL SOCIETY OF THE COUNTY OF KINGS.

EDITORIAL COMMITTEE:
JOSEPH H. RAYMOND, M. D.,
ALEX. HUTCHINS, M. D., JOSEPH H. HUNT, M. D.,
GLENTWORTH R. BUTLER, M. D., FRED. D. BAILEY, M. D.

VOL. II. BROOKLYN, N. Y., NOVEMBER, 1888. NO. 5.

ORIGINAL ARTICLES.

THE GALVANIC TREATMENT OF FIBRO-MYOMATA. *

BY A. H. BUCKMASTER, M.D.,

Assistant Surgeon to St. Peter's Hospital, Alumnus of the Woman's Hospital, Gynecologist to the Hospital for Mental and Nervous Diseases.

Too often the profession is startled by the birth of novel therapeutic measures which are based upon clinical cases and confirmatory investigations, and which fail to fulfill their promises and die a speedy death; fortunate indeed if the amount of mischief accomplished be small. The effect is to throw discredit on new things and to cause them to be regarded with distrust, however eminent their sponsors, and however complete may be the proof of their right to live. The professional bigotry that prevented the early recognition of Jenner's great discovery is not possible to-day, but the hypercritical method in vogue often prevents justice being accorded to work of the highest order. The profession is not always to blame for slighting new methods that promise great results. New plans of treatment claiming the attention of physicians by the clinical evidence adduced, the value of which depends largely on the honesty, experience and ability of the investigator, cannot be tested by experimental research in the hurry of an active professional life, and the doubter who follows in a perfunctory manner the directions of the enthusiast may arrive at conclusions more remote from the truth than the latter. It is only when scientific experimental research goes hand in hand with clinical investigation that error is eliminated as much as possible and theories, if found worthy, are supplied with the strongest claims for consideration. In the consideration of the subject of this paper by writers in general, experimental research has been almost entirely ignored, and my desire to pointedly direct attention to this is the *raison d'être* of this essay. My clinical experience in the general treatment of fibroid tumors of the uterus is based on the study of sixty-eight cases, in twelve of which the uterus was removed. If the experimental work in this paper accomplishes only the discontinuance of the improper term electrolysis, I believe that an important misconception of the treatment will be removed.

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* Prize essay of the Alumni Association of the Long Island College Hospital for 1888.

For the perfect understanding of what follows I will give a brief description of fibro-myomatous tumors. They consist of bundles of fibrous tissue, non-striated, but rarely striated muscular fibres, blood-vessels, nerves and lymph spaces. They present infinite variations between two forms which are clinically known as the white or hard fibroid, and the red or soft fibroid. This difference in appearance is caused by the preponderance of blood-vessels and muscular tissue in the one case, and of white fibrous tissue in the other, indeed the latter variety has so poor a vascular supply that observers have rarely been able to inject its blood-vessels from the uterine artery. In some instances there is a distinctly cavernous structure of the vessels about these growths and from these receptacles comes the nourishment of the fibroid. I have frequently seen fibroids whose blood supply was in no small part derived from the adhesions which were the result of inflammatory action caused by the irritation of the tumor. "In rare cases the blood-vessels become wide and dilated, so that the tissue is pierced with capacious channels and cavities containing blood. In other instances the lymphatics are widely dilated."* The blood-vessels are said by Klebs† to be somewhat peculiar. There are numerous capillary blood-vessels containing large nuclei, supported by a thin layer of fibrous structure and surrounded by muscular tissue. Between the sheaths of the vessels and the muscular bundles are wide spaces containing white blood cells. A cavernous structure thus originates which is not found in normal uterine tissue, and it is very probable that these cavities are to be regarded as lymph spaces in which the blood-vessels are suspended, as it were, by fine bands of connective tissue. On section I have found the exuding fluid to be markedly acid in reaction. This is probably due to the degenerative change that takes place during *rigor mortis*. From the above description it will readily be seen that tumors differing so widely in the proportion of the tissues that compose them, must respond differently to agents whose action depends on the predominance of one or other of their component parts. This may perhaps explain the conflicting results obtained by investigators. Clinically speaking, the uterine fibroid is a mass of fibroid and muscular tissue in the pelvis or abdominal cavity, that by its size presses upon surrounding structures; by its weight drags upon contiguous organs; and by its tendency to hæmorrhage causes at times fatal blood impoverishment. One can never predicate the symptoms by the size of the tumor. Some as large as a child's head may be unnoticed, while others no larger than a hen's egg may make the life of the patient miserable This was shown by the cases of Mrs. G. and Miss D. The former sought the writer's treatment for sterility. She had no pelvic or abdominal symptoms, but a fibroid as large as a child's head was found, and the patient was utterly unaware of its presence. On the other hand, Miss D. suffered excruciating pain for many years from an irritable bladder. She was a school teacher by occupation, but unable to attend to her duties. The trouble arose from a fibroid, the size of a very small lemon, in the anterior wall of her uterus.

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* Gen'l. Path. Anat., Ziegler, p. 197.

† Handb'ch d. Path. Anatomie.

The distressing symptoms accompanying fibroid tumors are worthy of attention, because their permanent removal is in some cases tantamount to a cure, and this would be the case in the unmarried, particularly those where matrimony was but little apt to be contemplated.

These distressing symptoms are:

1. Pain. (*a.*) From inflammatory products excited by the presence of the tumor.

(*b.*) From direct pressure on nerve trunks.

(*c.*) Vesical tenesmus* caused by tension on the neck of the bladder; this may eventually lead to cystitis.

(*d.*) Rectal tenesmus.

2. Chronic poisoning from absorption of fecal matter, the evacuation of which is interfered with by the tumor mass.

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* The writer holds with Dr. T. Addis Emmet that the mere pressure of the fibroid tumor on the bladder very rarely, if ever, leads of itself to irritation of that organ.

Dr. Sir Andrew Clark, in a very interesting and instructive paper on the chlorosis of girls,* draws attention to the importance of fecal accumulation in causing this condition. The accumulated feces not only undergo changes in themselves, but promote changes in the mucous membrane with which they are in contact. As one of the results of these changes, both chemical and biological, there are produced new substances, ptomaines and leucomaines, which are injurious to the organism. To this condition is the anæmic and cachectic appearance of patients with fibroids often due, and if by any means we can lessen the size of the tumor mass great relief may thus be afforded in permitting the intestines to rid themselves of their dangerous contents.

3. Hæmorrhage. (*a.*) From fungous endometritis, which the writer has found to exist in almost all the cases where the uterus was removed for bleeding fibroid.

(*b.*) From passive hyperæmia. No one will dispute this cause who has seen the large congested os that will bleed freely even from the prick of a pin. Gusserow has called attention to the fact that the portion of tissue over the tumor may become thin and atrophied, and that there will be a collateral hyperæmia of the remaining portion of mucous membrane. Rokitansky reported a case where a fatal hæmorrhage from a varicose vein of the bladder occurred in a patient affected with a fibroid.

4. Discomfort from weight of the tumor mass. This is the only symptom in some cases, and may be relieved by a properly fitting abdominal support.

The above symptoms are profoundly effected by the galvanic current. The pain is checked, and to what this cessation is due is a matter of conjecture. We know that an inflammatory exudate is often quickly absorbed under influence of the galvanism, and some have offered this as an explanation. The decrease in size of the fibroid lessens the pressure symptoms, and the cauterizing effect in the uterine mucous membrane places an impassable barrier between the blood-vessels and the cavity of the uterus. We believe that the hæmastatic effect of the positive pole is made clear by this mechanical explanation; iodine, the actual cautery, and other agents of this character would have proved themselves much more potent had the skill of the gentlemen using them been sufficient to have applied them thoroughly to the surface from which the blood passed. It is oftentimes a matter of the utmost difficulty to pass a sound to the end of the uterine canal in these cases. The life history of these tumors is very irregular, a large proportion of them disappearing or causing no further trouble at the menopause.* In those cases where the symptoms are very distressing, and the menopause is far distant, life becomes a burden. Before the treatment under discussion was inaugurated, the only effective alternative was removal of the ovaries or of the uterus. When the tumor is large, Hegar's operation is usually impracticable, because the ovaries are so bound down that hysterectomy becomes an operation involving less risk.† Not only are the chances of immediate recovery from the operation very bad—I do not think the mortality is overstated at 30 per cent. even in the hands of skillful laparotomists—but the possible pains of a large cicatricial mass in the abdominal wall or peritoneal adhesions may prove greater than existed before the operation.‡ The writer has in mind two cases where life was miserable before the operation, and almost unbearable a year after it was performed. I will venture to say that no surgeon was ever justified, however good his statistics, in subjecting his patient to the risk of an operation in the case of a fibroid, unless the symptoms were of a marked character, and the conclusion that follows from this statement is that if galvanism will relieve the symptoms, no one is justified in doing a hysterectomy at the present day. This is what the conservative Dr. Thomas Keith,§ of Edinburgh, remarks. I quote from the *British Medical Journal:* "Fortunately for those afflicted with internal tumors it matters but little which of the old ways of operation is the best. . . . . . The treatment introduced by Dr. Apostoli must take precedence of all others. The success of this treatment is a great fact, and I accept, *toto animo*, his teachings. I do not speak without some experience of his practice." He then remarks that he has treated a large number of patients. He concludes with this statement: "I would consider myself guilty of a criminal act were I to advise my patient to run the risk of her life—and such a risk—before having given a fair trial to this treatment, even were I sure that the mortality would not be greater" than that of my private cases.

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* British Medical Journal, 1888.

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* Dr. T. A. Emmet, at the January meeting of the N. Y. Obst. Society, 1886, remarked that when preparing the statistics for his book he found about 19 per cent. of the cases either disappeared after the menopause or the patient ceased to suffer from its presence.

† "Contributions to the Surg. Treat. of Tumors of the Abdomen," Keith.

‡ The intraperitoneal method so ably advocated by Martin has not found much favor in this country.

§ British Medical Journal, Dec. 10, 1887.

Dr. Apostoli, in a paper before the American Gynæcological Association, said he had employed electrolysis in nearly three hundred cases. The uterine fibromata almost invariably diminished in size, but never totally disappeared.

Dr. Skene, in a personal communication to the writer, speaks in the very highest terms of this treatment. The following case was narrated to me by Dr. Louis D. Mason, of this city. He sent a young lady suffering from a fibroid which reached above the symphysis, to Dr. Skene's private sanitarium. After a few months' treatment she returned home, and there seemed to be a disappearance of the growth. Since then she has married and is now the mother of a fine child. With such a success as this, we can hardly be surprised at the doctor's partiality for the method.

Dr. John Byrne, who is an authority on electrical matters, reported the favorable treatment of a case in the proceedings of the N. Y. Obstetrical Society for January, 1887. The patient, after treatment, suffered from a severe attack of peritonitis, but eventually recovered. In this case, puncture by the abdomen was practiced.

"The hopefulness of the treatment has always seemed to me," says the great English obstetrician, Dr. W. S. Playfair, "to be in the well-known clinical fact that uterine fibroids often undergo spontaneous absorption, as, for example, during involution following labor; and it seems not unreasonable to suppose that we may find a means of doing by art what is often done by nature under conditions as yet but little understood, but well worthy of further study."

Dr. W. Woodham Webb, at the suggestion of Sir Spencer Wells, made a thorough investigation into the methods of Apostoli. He remarks that "for more than six months I have regularly attended his *clinique*, spending many hours a day questioning and examining his patients, noting what was done. . . . . The upshot of all this is that I am perfectly satisfied much good has been done; many women have been gradually, and without suffering, set up in health, who would under ordinary circumstances have been condemned to the risks of some cutting operation."

Mr. E. Stephenson, electrician to St. Bartholomew's Hospital, says: "I have been associated in the treatment by electricity in two cases of fibroid tumor of the uterus, both of which improved."

Dr. Geo. J. Engelemann, of St. Louis, states that he has destroyed neoplasms, from the size of a walnut to that of a hen's egg, in three sittings of five minutes each.

Dr. W. H. Baker says: "My experience in the application of electrolysis in the treatment of fibroid tumors of the uterus extends to fourteen cases, the results of which, so far as relieving the suffering dependent on the existence of the growth, have been highly satisfactory; and, so far as arresting, diminishing the size of, or causing the entire disappearance of the growth are concerned, fairly satisfactory, viz.: in one case the tumor entirely disappeared; in twelve cases the tumor diminished one-third to one-half of its size. In one of these cases, however, there is now some indication of a return of the growth accompanied by suffering. In one case, although the suffering was greatly relieved by this treatment, there was little or no diminution in the size of the tumor." The doctor has made no attempt to cull all the published cases, but mentions the views that seemed most valuable.

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* British Medical Journal, June, 1887.

Dr. Marie B. Werner states that she saw Dr. Apostoli at his clinic, "and the patients without exception expressed themselves much improved by the treatment." She reports six cases, three cured, three benefited.

Those who are not convinced by personal experience can hardly remain incredulous in the face of such evidence as that we have given, on the authority of men who are not only eminent on account of professional qualifications, but men whose honesty cannot be gainsaid.*

Historical References.—In the *Medical and Surgical Reporter* of February 8th, 1873, appears the report of a case of fibroid tumor of the uterus which was treated by a strong galvanic current under the direction of Dr. Ephraim Cutter, of New York. Dr. Gilman Kimball directed the second application, and the names of those gentlemen have been indelibly stamped on the procedure as pioneers. Their attention was called to the subject by the success attending the treatment of a venous tumor of the neck by Dr. Lincoln,† of New York. The method pursued was that of puncturing the tumor through the vaginal wall in two places. A three-cornered needle was used, made of a surgeon's director and japanned at the larger end, leaving a free surface of two and seven-eighths inches. While it was recognized that the treatment pointed out by these gentlemen was potent for good, a number of disastrous cases (some of whom died) deterred the profession generally from taking up their methods. Dr. Cutter reports the results of fifty cases treated, as follows:

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* Since the above was written there has been some unfavorable testimony; of fifteen patients treated, Chadwick lost two. N. Y. Med. Jour., vol. 46, p. 385. In the Arch. d'obst. et de Gyn. (Jan., 1888,) Dr. D'Angel Villa, a clinical assistant of Dr. Doleris, states that the results obtained in the clinic were not satisfactory either as regards disappearance or marked diminution in size of the growth. He deemed the method a palliative one, and declares that the views he expresſed are those of Dr. Doleris.

† Lincoln, R. P., Med. Rec., Dec. 15, 1870, vol. v, No. 20.

Series 1.—Non-arrests,	Seven cases.	Total fifty cases.
Series 2.—Fatal,	Four "	
Series 3.—Arrests,	Twenty-five cases.	
Series 4.—Relieved,	Three "	
Series 5.—Cured,	Eleven "	

In 1878 Dr. N. Freeman, of Brooklyn, reported a case of galvanic treatment of a fibroid tumor, where a consultation of a number of eminent Brooklyn surgeons had decided that no surgical interference was justifiable. The doctor used a straight, round-pointed needle, and pushed it through the abdominal wall to within a short distance of a sail needle passed through the uterine canal into the tumor. Both needles were insulated within an inch of their point. Since this time, Dr. Freeman has used the method of abdominal puncture. His use of a round needle is a great advantage because less liable to be followed by hæmorrhage (separating the tissues instead of cutting them); but we believe puncture through the abdominal wall should never be practiced. The writer has seen the surface of a fibroid covered with veins, some as thick as one's thumb, and we cannot conceive it justifiable to run the risk of peritonitis by this method when a much safer and probably as effective a method is known. For this we are indebted to the indefatigable industry and ingenuity of Dr. G. Apostoli, of Paris, for some years a surgeon in the French army; and his attention was directed to the subject of electrical therapeusis by Dr. Tripier. In 1884 he presented a memoir to the Academy of Medicine, giving an account of his manner of treatment. He revolutionized the matter, or, rather, he infused into it new life by two things; one was the use of galvanometer, so that the current strength* could be accurately measured; and the other was to so diffuse the current over the abdomen, by means of a broad electrode of clay, that the patient was able to bear very powerful currents without puncture. He also made use of a platinum probe in the uterus. He placed the method on a scientific basis, and it would be much more reasonable to call it Apostoli's method than the treatment of fibroids by electrolysis, which is a very misleading application of the term.

In the face of these facts, we would scarcely believe that any one would wish to detract from the credit that belongs to Apostoli. This, however, is the case. Mr. Tait, as usual, claims precedence. He states, in regard to a certain occasion, that by using a number of elements "of small and uniform size . . with constant replacement of precisely the same exciting fluid, the dosage was precise and accurate." (?) The absurdity of this remark scarcely needs consideration. It simply shows that the writer was ignorant of the practical matters connected directly with the subject he criticises. He further states that he used a galvanometer with an ordinary angle measurement, "and this told quite as much as any instrument graduated into ampères." Comment is unnecessary.

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* The term "current strength" is much preferred to the term "intensity," which is almost obsolete among electricians.

At the International Medical Congress at Copenhagen in 1884, Dr. Menière, of Paris, reported six cases treated by electro-puncture in which there was complete amelioration of the symptoms and disappearance of the fibroid.

Dr. George J. Engelemann read a very exhaustive paper before the American Gynæcological Society in 1886 on the subject of electricity in gynæcology. He drew attention to the importance of the definite size for the electrodes, and sugested that the abdominal plate or, as he very nicely expressed it, the dispersing electrode, should be "3½ by 4½", or "4½ by 6½", or "6½ by 9¼ or 10". It seems to the writer that this would be better expressed by stating the number of square inches of contact, for it is often convenient to cut the plate so that it will fit the abdominal wall. The importance of having a large abdominal electrode is made manifest when a patient is treated without using an anæsthetic; for, where a small contact causes pain, a larger one may be absolutely painless. To those who have not a clear conception of the term intensity or current strength, the following comparison may be of service. We may imagine a wind of a definite velocity and of a definite height sweeping over the country, and the trees and herbage that are swayed by its gentle pressure will thrive from the better circulation induced by their motion. If the same breeze is confined to one twentieth of the country, other conditions being equal, it will become a wind storm, and the corn will be thrown down and the branches broken off trees; but, further, if we confine the wind to a much less territory, we have a hurricane that uproots the trees, throws houses about like playthings, and leaves desolation and ruin in its train. Yet there is always the same amount of energy, only in case of the hurricane it is concentrated. So a current of the same intensity may blister or not be felt according as it is diffused. Intensity is synonymous with current strength, which is a much better term; it is this that is measured in ampères. A current which is much diffused may act as a tonic; while, if it is much concentrated, it may act as a caustic. The practical lesson this teaches is that we should be careful with a current passing through the peritoneum in order to reach the tumor, particularly when the patient is under the influence of an anæsthetic and pain ceases to be present to give the signal of danger referable either to the abdomen or pelvis. Apostoli says: "Il faut que toute operation soit uterinement tolerable."

The next suggestion of importance was made by Dr. Franklin H. Martin, of Chicago, who indicated that two square centimetres of uterine electrode with a current of fifty milliampères, or four square centimetres with one hundred milliampères of current would accomplish both the checking of hæmorrhage and the absorption of the fibroid. The definite size of the exposed surface of the electrode, together with the definite intensity of current, is a great advance. The proportions given by Dr. Martin will give good results, as the writer can attest. Dr. Martin did more than the others in an experimental way; he watched the effect of the electrodes on the tissue outside of the body.

Dr. Robert T. O'Callaghan,* in a communication to the *British Medical Journal*, refers to the frequency of diseased appendages, and implies that they exist in a large proportion of the cases of myoma, and draws the conclusion from this that the treatment is dangerous. This is quite contrary to the writer's experience; but, as the doctor is a follower of Tait, his enthusiasm in this direction may be accounted for. He also calls attention to the intimate relation between these tumors and the menstrual function, and it is undoubtedly a fact that their presence is chiefly noted when this function is in operation; but Dr. O'Callaghan draws an erroneous conclusion when he states that there can be no security of cure except by the arrest of the menstruation. We would call this gentleman's attention to a not so small class of cases where the tumors increase after this function has entirely ceased.

I wish to offer a clinical case that was observed by physicians not particularly interested in its treatment. Miss X., æt. 34, nurse by occupation, had been under general gynæcological treatment for six years. She first sought medical care on account of pelvic pain. She took at one time ergot for seven months with no results, and finally sought the advice of Dr. Skene because the tumor had lately been rapidly increasing in size. She was examined carefully by Dr. Skene, who made notes of the case at this time, and also by Dr. Lucy H. Hall when she first came under my care by the kindness of Dr. Skene. She has had twenty treatments, averaging from two to three weekly. The current used, which was as strong as she could bear with comfort, ranged between thirty and sixty milliampères The abdominal electrode consisted of a mass of moulding clay with thirty-six square inches of contact. The uterine electrode consisted of two square centimetres of platinum, and was the negative pole. The séances lasted from five to eight minutes. After the patient had undergone eighteen treatments she was carefully examined by Dr. Skene and Dr. Hall, and they both agreed that the tumor had decreased in size. The patient was convinced that the tumor had decreased, but stated that she had gained much in flesh. It is not uncommon for patients to rapidly gain in flesh while under this treatment. Three other cases under my care have shown decided improvement, the tumors growing smaller and the unpleasant symptoms growing less.

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* British Medical Journal, July 30, 1887.

It is often difficult to estimate the comparative size of the tumor at different periods. The distended condition of the intestines will cause error in the calculation, and the same tumor varies at different times of the menstrual period, as it is more or less engorged with blood. The measurements, considering the ant. superior spinous processes, the umbilicus, and ensiform cartilage as test points, are defective. The best method we are aware of is that followed by Dr. Skene. He catches up the abdominal wall and makes a careful estimate of its thickness, and then places the fingers at the sides of the tumor, estimating its thickness. The same approximate measurement is made from above and below, if possible. The importance of allowing for the abdominal wall will be appreciated when we observe how rapidly its thickness is affected by the general nutrition of the patient.

HOW DOES GALVANISM AFFECT THE FIBROID?

The use of the term electrolysis, as applied to the form of treatment considered in this essay, has been avoided because, when used as a distinctive application, it is misleading. There is no more justification for the term as applied to the treatment of fibroid tumors than there is for the use of the expression for the application of the galvanic current for the relief of a sciatica. Electricity is conducted by the metals and only such fluids as it can decompose.* The tissues of the body only become conductors when fluid is present. The decomposition takes place only at the poles, and the changes that occur between them are those of atomic rearrangement. For example, if a current is applied to decompose a certain amount of water, as represented by—$H_2^{i.}O^{i.}$, $H_2^{ii.}O^{ii}$, $H_2^{iii.}O^{iii}$, $H_2^{iv}O^{iv.}$ +, the first molecule is decomposed, the H^1 going off as a gas to the negative pole. Molecule $H_2O^{iv.}$ is also decomposed, the O^{iv} passing off as a gas at the positive pole; this would necessitate an entire rearrangement, so that the following condition would be present: $H^{I.}$ free and—$H_2^{II.}O^{I.}$, $H_2^{III}O^{II}$, $H_2^{IV.}O^{III.}$ + free $O^{IV.}$. This change would continually take place until all the water had become decomposed. It makes no difference whether the molecule be a simple one like water, or a complicated organic combination. This rearrangement is, as far as we know, the only chemical change that takes place; so that the term electrolysis, used to indicate some peculiar disintegration that is not always present, is clearly misapplied; electrolysis occurs whenever a current is used.

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* Pure carbon is an apparent exception to this.

In attempting to answer the question of how galvanism affects fibroids, writers have indulged in idle speculations rather than attempted experimental research. The riddle is no easy one to solve, for the tumors vary not only in position, form, and blood supply, but differ widely as to their constituent parts. They differ not only among themselves, but the same fibroid presents marked differences at different times. During the menstrual period they may be enlarged and soft, and when it is past, relapse into their former hard condition. They often enlarge very markedly during pregnancy, and disappear as the uterus undergoes involution, as has been observed by Emmet,* Lorain,† Pagan,‡ and Hanks.§ They disappear at times without any known reason even in young women, but this is of so rare an occurrence, that it need scarcely be considered when dealing with satistics of their treatment. It has been claimed that the cases where this was noticed were cases of hard inflammatory masses, but both Schroeder || and Gusserow ¶ believe that it occasionally takes place. The former gentleman collected thirty-nine cases, and said that in the majority of these "the correctness of the diagnosis may be regarded as beyond question."

In considering the cause of their disappearance both spontaneously and as the result of treatment, the more cautious observers ascribe it simply to modified nutrition, and there is but little doubt that in so doing they occupy an exceedingly safe standpoint. Prof. Playfair says that "the action of the negative galvanic current in electrolysis is probably simply that of a strong stimulus to absorption." The nutrition of the fibroid may be affected in one of several ways, or by all of them combined.

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* Emmet, Princ. and Pract. of Gyn.

† Gazette des Hopitaux.

‡ Lambert, des Grosses de myomes. * Thèse Paris, 1880.

§ Diseases of the Female Sexual Organs.—N. Y. Med. Jour., 83, 614.

|| Dis. of Female Sexual Organs.

¶ Op. cit., p. 223.

1st. By affecting the blood-vessels and absorbents.
2d. By affecting the muscular tissue.
3d. By affecting the nerves.
4th. By affecting the connective tissues.
5th. By affecting the cells directly.

That the blood-vessels and absorbents play an important role several facts abundantly attest. The increase in size of many of these tumors during menstruation and their atrophy when the ovaries are removed and they are deprived of the periodical hyperæmia, attest to this. The ligation of the ovarian arteries when the appendages have been removed may in some cases have something to do with the decrease in size. The relation between the direct action of ergot on the coats of the blood-vessels and its indirect action through the muscular structure, has not been entirely determined, and another agent that probably acts much in the same way as ergot, has been recently advocated—pinus canadensis.* Gusserow states that various operative procedures—sponge tents, incision of the mouth of the uterus and intra-uterine injections, frequently cause sloughing of the fibro-myomata by interference with its nutrition through traumatism of the uterine mucous membrane.

The effect of a current of fifty milliampères can be well studied, by passing it through a portion of bared intestine of a living animal. The tissue between the poles becomes blanched and continues in this condition for some time after the current is broken. I have observed this several times, and there is undoubtedly an intense contraction of the vessels. Another important effect of the current is its cataphoric action. This takes place during the passage of an electric current through a porous body. The fluids are transferred toward the negative pole about which they accumulate. This can be nicely seen in the above-mentioned experiment, where the tissue about the negative pole bulges up from its excess of fluid. The activity of the cataphoric action is much greater with stronger currents and with more poorly conducting mediums (Erb). A familiar experiment to illustrate this action, is made by using a vessel containing water which is separated by a porous partition into two compartments. If the current is passed from one compartment to the other, the water is seen to rise in the compartment in which is placed the negative pole. The removal of a large amount of fluid from one portion of a fibroid to another must profoundly affect its nutrition, and of course this influence would be more manifest in those tumors where the fluid portion is more markedly in excess. The lymph spaces in some of these tumors are enormously dilated. It will perhaps be demonstrated in the future that many of the blood-vessels and lymph spaces are destroyed by very strong currents.

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* Schmidt, N. Y. Med. Rec., Feb. 15, 1888.

(*To be continued.*)

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OBSERVATIONS UPON THE OPERATIVE TREATMENT OF ACUTE INTESTINAL OBSTRUCTION.*

BY GEO. R. FOWLER, M.D.,

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It is a matter of sincere regret that a treatment purely medical or, in other words, internal medication should ever be attempted in cases of acute internal strangulation due to constriction by band or other causes. True, the literature of the subject, including the experiences of the most noted surgeons, shows that widely differing opinions are held as to the indications for the operative procedure. Even the differential diagnosis between this and obstruction from fecal accumulation and peritonitis is not held to be always clearly defined, and may, in some instances, be impossible. The diagnosis of the particular anatomical form of intestinal obstruction is more often than not entirely in the dark. It is, therefore, but a waste of time to lay down the indications for the operative treatment of this or that particular form of obstruction. Treves' proposal, therefore, to divide the cases into, 1, The form of obstruction due to constricting bands, etc.; 2, Volvulus; and 3, Invagination, is practically useless as soon as the field of morbid anatomy is passed by, and the practical question of operative treatment is presented.

It is therefore reasonable to suppose that attempts at progress in the operative treatment of acute intestinal obstruction must be made in the direction of perfecting diagnostic methods, as well as by improvement in the technique of the operative procedure itself. The present indications point in the direction of explorative laparotomy as a means of suggesting new diagnostic helps, for in no other way are we likely to increase our knowledge of the anatomical conditions present, and at the same time offer our patients a chance for life.

This being granted, it behooves us as practical surgeons to discuss, first and most carefully, all the difficulties of the operative procedure, and to occupy ourselves with the question of how best to overcome or evade these difficulties. In other words, to improve, wherever possible, upon the technique of laparotomy.

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* Part of the discussion upon Dr. Rockwell's paper on Intestinal Obstruction before the Brooklyn Pathological Society, Dec. 23, 1887.

We will suppose that we are brought face to face with an undoubted case of acute intestinal obstruction. It may even be imagined that the particular anatomical form of obstruction has been reasonably well established. Our experience and our conscience prompt us to at once make an effort for the relief of the almost doomed patient. The operation is imperatively demanded, and that at once. The patient still has strength to bear anæsthetizing—it may be even not certain that he will withstand the effects of loss of blood, and, what is yet more likely to threaten him, extreme nervous shock from the necessary manipulative interference inseparable from the operation.

The first thing to occur to the surgeon, apart from the condition of the patient himself, is the securing of favorable surroundings and competent assistants. In our hospital work these are always at hand, but in our private practice it becomes a serious matter, when we attempt to perform the operation without the advantages of expert assistants, sufficient light and reliable antisepsis. It is therefore proper to urge, as preliminary to the performance of the operation (and I had almost said, before deciding the question whether to operate at all or not), that the patient be carefully transported to a well organized and well equipped hospital, regarding this almost as a *sine quâ non* of success.

As to the anæsthetic: In cases of acute intestinal obstruction there are some especial dangers to which an anæsthetized patient is liable. Among these are to be particularly mentioned the occurrence of fecal vomiting and the entrance of fecal matter into the respiratory passages. This is not an imaginary danger, but has actually occurred upon more than one occasion; and at least one case is reported in which the immediate performance of tracheotomy and aspiration of the offending substances failed to rescue the patient from death. In any case, therefore, in which vomiting has occurred, or is likely to occur, it is imperative that the stomach be thoroughly emptied and washed out by means of the stomach pump, after the manner proposed by Madelung, Kussmoul and Bardeleben.

The view has been held that laparotomy is not permissible in cases of extreme distension; that meteorism is a contra-indication to opening the abdomen. This has arisen from the fact that the difficulties of avoiding an extensive manipulation of the abdominal contents, itself a pregnant source of extreme shock, are such as to deter the surgeon from risking his reputation upon the very great probability of the patient perishing upon the table. I cannot see, however, that this is a sufficient reason for rejecting the operation, and I am sure that many cases have come to a favorable termination under such apparently un-promising circumstances. On the other hand, in cases of abdominal section where no meteorism is present, there exists an almost equal certainty, in cases where a long incision is made, of the occurrence of rolling out of the bowels from the abdominal cavity. In young individuals with powerful abdominal muscles, the bowels crowd out with an almost irresistible force. Of course this is aggravated in cases of obstruction by the distended condition of the intestines themselves, and this constitutes the chief difference, so far as the intestinal canal is concerned, between the class of cases under consideration and those in which laparotomy is performed for intraperitoneal conditions of a non-obstructive character. Therefore, one of the most serious questions in connection with improving the technique of the operation is that of overcoming this condition of meteorism.

Mikulicz aims at avoiding the protrusion of the intestines as much as possible by crowding them back into the abdominal cavity by means of carbolized towels. An assistant grasps a portion of the protruded bowel, while the operator explores by seizing and drawing out the intestine, the assistant returning it to the cavity of the abdomen as it is gone over and passed into his hands. In this way but a small portion is allowed to remain outside of the abdominal cavity at a time. If the operator recognizes, from the absence or lessening of the distension and congestion of the intestine, that he is proceeding in the wrong direction, he ceases the exploration, and returning to the place of beginning, proceeds to search in the opposite direction.

On the other hand, Treves, in order to facilitate the immediate discovery of the place of obstruction in some instances allows the intestines to glide at once from the cavity of the abdomen. This is far more objectionable than the method, likewise suggested by Treves, of making but a short incision, and passing the hand at once into the cavity of the abdomen and attempting to locate the point of obstruction by sense of touch alone. The *tactus eruditus* requisite for success in this method can only be attained by great experience in abdominal surgery, or practice upon the cadaver.

It is difficult to estimate the comparative value of these last named and diametrically opposite procedures. On the one hand, the complete eventration of the bowels, in spite of the greatest care to antisepsis, will result in inviting sepsis through exposure of so large a surface to the atmospheric air, to say nothing of the almost unavoidable cooling of the intestines and the resultant shock. On the other hand, the damage done by forcing the hand among the folds of intestines as they lie closely crowded together would seem to compensate, in a great measure, for any advantage gained by this method. The conviction is forced upon one, as the attempts of the post-mortemist are witnessed, in his efforts to locate the constricting point upon the cadaver by either of these methods, that the finding of the obstruction is largely a matter of accident in some cases. The difficulties are greatly enhanced in cases where more than one obstruction exists. Kümmel, it may be stated, in comparing these two methods, is of the opinion that the dangers of rapid eventration are more than compensated for by the rapidity with which the operation may be completed. This would seem reasonable, inasmuch as time in these cases is of the greatest value, and if our antiseptic precautions are effective, and careful assistants see to it that the intestines are properly covered during the search, with towels kept constantly at a proper temperature by almost constantly pouring upon them a warm antiseptic solution, the two greatest objections to this plan are overcome. And it is very certain, so far as the mechanical disturbances are concerned, the plan of Mikulicz offers no advantages, for both valuable time is lost by the prolonged search, and considerable and damaging manipulation of the intestinal canal is a necessary incident. The overfilled bowel, in the course of either the procedure of Mikulicz or that of complete eventration favors, by the disturbed relations of the same to its mesenteric attachments, solutions of continuity of the serous covering, itself a source of positive danger.

Granted that by the rapid method the obstruction is readily found and relieved, a far more serious difficulty meets one. I refer now to the reposition of the abdominal contents. The large masses of distended folds of intestine most obstinately refuse to be coaxed back into the cavity of the abdomen, without the exercise of that very objectionable force to avoid which the operator has allowed them to roll out freely from the interior at the beginning of the operation. It is in vain that we expect after the removal of the obstruction, that the contents of the intestinal canal will so distribute themselves as to relieve the over-distended folds, and thereby favor reposition. In volvulus or invagination, there seems to be a greater tendency to the distention than in acute obstruction by band.

No one but he who has occupied the responsible position of the operator in such a condition of affairs can ever realize what a desperate situation it really is. In favorable cases, packing the pelvis first, and, while one assistant holds the already reposited folds back with a large sponge or towel, another grasps the lips of the incision and drags them well forward and away from each other, the operator, by a lucky chance, may see the last of the distended intestine return to the abdominal cavity, and breathes a sigh of relief. In many other cases, however, it soon becomes apparent to the operator that his best directed efforts are not at all likely to succeed, time is passing, and, if too long persisted in, the patient is threatened with death before the completion of the operation.

Under these distressing circumstances, when the patient has been almost snatched from the grave, to stand by and feel that he is in danger of perishing from our inability to return the prolapsed intestine, is enough to try the mettle of the coolest operator. It naturally suggests itself to attempt the reduction of the size of the distended pouches as they lie before us. But puncturing the intestine is worse than useless, for but a comparatively small quantity of the contents can escape, if this is done; the paralyzed bowel refuses to force through so small an opening the mingled solid and fluid fecal material and gas; besides, the region directly adjacent to the puncture can only be effected by this measure. Hæmorrhage from the congested intestinal wall is quite likely to follow, and if a lateral ligature is applied, it will be forced off during the subsequent manipulations. If a suture is applied, it will almost certainly cut its way out.

In this emergency there is but one rational procedure to be adopted, and this consists in making a free incision into the intestinal canal, first taking the precaution to bring the fold selected for this purpose as far away as possible from the abdominal incision, in order to avoid fouling of the peritoneal cavity. The force with which the intestinal stream flows, and the direction which it takes differ so widely in different cases that the latter accident is sometimes entirely unavoidable, and all attempts to conduct the operation to its close in an aseptic manner are frustrated. Perhaps no stronger argument against free eventration of the bowels could be offered than these difficulties of reposition, and I can assure you that the picture is not overdrawn.

In view of these difficulties in repositing the prolapsed intestine, Braun has proposed, as a preliminary operation, the establishment of an artificial anus, postponing the operation for several days, if need be, until the intestinal canal has thoroughly emptied itself. I do not know that this proposition has ever been carried out. There must always exist great uncertainty as to the precise spot at which the preternatural anus should be made, and, in case of failure to establish it at the proper point, valuable time will have been lost.

Hahn, of Berlin, in a case of volvulus of the small intestine, attempted to clear up the diagnosis by an exploratory incision. Realizing the difficulties in the way of a ready reposition of the bowels, he opened the intestine and emptied it of its contents before proceeding with the exploration, and thus relieved it of its contents. With the incision still open, he explored the cavity of the abdomen with his hand. The patient perished immediately after the operation, but the faulty technique of exploring the abdominal cavity with an open intestinal wound existing must strike one at the first glance.

About two years ago, in the course of a laparotomy for chronic obstruction, and while vainly attempting to keep the folds of distended bowel out of the way, and within the abdomen, the attenuated intestinal coat gave way and a sudden gush of fecal matter flooded the operating field. The rent was of sufficient size to be utilized for the purposes of a preternatural anus, it having become apparent that the case was one of cancer of the intestine, and which did not justify more than this measure of temporary relief. I was then struck with the facility with which the sections of intestinal canal could be emptied through this large opening, and the gut returned to the cavity of the abdomen. A later experience in a similar case at St. Mary's Hospital, leads me to believe that such an accident is liable to occur, and should be counted among the dangers attending an attempt to manipulate the overdistended gut with its abnormally thin walls. It suggested itself to me, at the time of the second accident, that, by means of an incision deliberately made in a presenting fold of overfilled intestine, and favoring the outflow of the fecal matter by position and manipulation, greater ease and certainty in locating the obstruction would be attained ; while the application of a double line of sutures to the incision, after it has fulfilled it purpose, would insure against subsequent leakage into the peritoneal cavity.

Since that time I have learned that Prof. Madelung, of Rostock, has conceived and executed a precisely similar procedure. He makes a median incision in the usual manner, and selects a fold of intestine which seems especially distended with fecal accumulation or gas. This he draws out through the abdominal wound, spreading it out in such a manner as to prevent its lumen from being occluded at any point by angulation, and passes two loose ligatures through the mesentery and around the bowel, several inches apart. The patient is then placed upon his side, the prolapsed bowel being wrapped in iodoform gauze. An incision is now made in the gut, as if for an artificial anus, the anæsthetic being suspended, or administered in small quantities, while the exit of fecal matter is facilitated if necessary by the introduction of a flexible rubber tube or large catheter. When the flow ceases, he closes the wound in the intestine with accurately placed intestinal sutures, and compresses the bowel slightly above and below the closed incision by means of the provisional ligatures placed as before mentioned. In order to find these again when needed, he leaves the ends long. The object of these latter is to prevent a sudden rush of fecal matter from the other portions of the intestinal canal from forcing its way into the cavity of the peritoneum by causing the sutures to cut their way through the serous and muscular coats. The operating field is now thoroughly cleansed, and, placing the patient upon his back, the wound is enlarged and the search proceeded with. If successful, the constricting ligatures are removed and the sutured portion dropped back into the abdominal cavity; otherwise, the sutures are removed and the incised portion of the bowel utilized for the purposes of an artificial anus.

In answer to the objection which may be raised against this plan, that it will only empty the particular loop of intestine which has been incised, Madelung insists that where but a small incision in the abdominal wall is made, and the greater portion of the intestines remain within the abdomen, the contraction of the intestinal canal, together with the elasticity of the abdominal walls themselves, furnishes the expulsive power which forces out the fecal accumulation. By suspending the anæsthetic and allowing the patient to recover partially from its influence, the emptying process is very much facilitated.

The site of the stenosis having been discovered, the further steps of the operative procedure must necessarily vary with its extent, character, and general surroundings. In case of obstruction by band strangulation or volvulus, the study of the conditions of the intestine itself becomes an important one. At all events, unless the case come under observation very early, the operator should be ready to search a greater or less portion of the canal, as may be necessary. It is stated that Koeberle resected two metres of the small intestine, and that Kocher, of Berne, removed 160 ctm., both patients recovering. The experimental studies of Senn, of Milwaukee, are of special interest in this connection; and his suggestion to restore the patency of the intestinal canal in cases in which it is found impracticable to remove the obstruction, by bringing an opening made into the gut above the point of obstruction in contact with a similar opening made below the constricted portion, and then suturing it, may be deemed worthy of trial, as a means, at least, of saving the patient from the horrible alternative of an artificial anus. Intestines indubitably gangrenous should be removed in any event.

It is held to be a cardinal principle in abdominal surgery that the manipulations necessary for releasing the constricted gut should be done only when the eye can assist in the accomplishment of this part of the operative procedure. If needful, a second incision in the abdominal walls, at right angles to the first, should be made, in order to facilitate this part of the operation. To attempt to place two ligatures around a band, and then incise the latter between them while groping around in the dark, is a species of foolhardiness but little short of criminality, I care not how experienced the hand essaying it. In volvulus or invagination, release of the environment of the gut might, in exceptional cases, be accomplished by the aid of the touch alone, but even here such a course should be the rare exception and not the rule. The same remarks apply to the separation of adhesions.

With the release of the imprisoned section of intestine, one would suppose the most important part of the operation finished. There still remain questions of resection of gangrenous intestine, however; and, in cases of invagination, that of providing against a continuance of the obstruction by a persistence of the thickening of the invaginated portion. Senn's method of insuring the integrity of the fecal circulation by "intestinal anastomosis," as before suggested, may upon trial be found to be the readiest and safest operation for this purpose. In cases of volvulus, provision should be made against a repetition of the accident by adopting the suggestion of Roser of fastening the untwisted portion of the intestine to the parietal peritoneum by sutures.

The cleansing of the peritoneal cavity is a not unimportant part of the operation, as any surgeon fully appreciates. One is startled at finding, in spite of every endeavor to avoid it, that considerable quantities of the foul and death-dealing fecal matter have found their way into the cavity of the abdomen. Yet one need not lose heart at this. I have in my mind one of my recently reported cases of laparotomy, in which the peritoneal cavity was literally flooded with the decomposing fluids from the encapsulating sac of an extrauterine pregnancy. Here flushing the peritoneal cavity with a warm antiseptic solution again and again, snatched the patient from her impending doom. This should be done in every case, for, apart from its usefulness in cleansing the parts and thus insuring the patient against sepsis from this source, it has been shown by Gill Wylie that shock is lessened or warded off by this precaution.

It must be clear to us all that, in spite of all possible improvements in the technique of the operation, the use of antiseptics, favorable surroundings, and increased experience of individual operators, the mortality of laparotomy for intestinal obstruction must remain an argument sufficiently impressive to deter us from its frequent performance. By a careful selection of cases, lives will continue to be saved by it; but we can never hope to emulate the brilliant successes which follow the well-directed efforts of Tait, Spencer Wells, Thomas, and Wylie in other fields of abdominal work.

THE DISPENSARIES OF BROOKLYN.

BY EMMETT D. PAGE, M.D.

A great inroad into the practice of the profession is made by what I consider useless institutions in this city, as well as many other larger cities of this country, and that have the approval and support of the leaders of different religious societies, or of some individual who wishes to perpetuate his name as a philanthropist, or of some whose object is monetary, and last, and the only *just* reason, as an aid to a scientific school. I refer to the great number of dispensaries established and supported in the different sections of this city and the acknowledged abuse of these dispensaries by people who are able to employ a physician, yet are satisfied to apply for free treatment simply as a means of economy.

It seems to me as a matter of protection to the profession, based upon justice, that the dispensaries of this, and hence of other cities, should be abolished in every instance save those associated with some school of medicine or used for clinical purposes. There is no class that enters into the make-up of society that is so hard worked as the physician, or is at the immediate call of so many people. There are none that are on duty so many hours, neither are there any that are subjected to so many impositions. All other classes of people enter into unions or societies for self-protection from a business standpoint; the physician has only societies for the advancement of himself as a student of medicine. Is this failure to organize an acknowledgment that their interests are of less importance to them, or is it that the profession cannot hold together firmly should such a union once be effected? Perhaps it may lack a leader, some one to stimulate discussion, to suggest methods and to perfect them.

At the present time there are in this city at least twenty-three dispensaries and rumors of three more, and reports of the patients treated free in these will show an average of from 5,000 prescriptions to new and old patients up to 30,000 or more in the largest ones. That represents so many dollars contributed by those physicians to the poor and the *rich* paupers of the city. I say rich paupers, I might better say well-to-do, who impose upon the dispensaries. This for one year. For ten years the amount would be exceedingly large, and with the increase in the number of such cases which will naturally attend the rapid growth of our city, this amount will be constantly augmented.

As there are about 1,000 legally qualified practitioners in the city, it is keeping out of proper and natural channels a large amount which rightly belongs to the sum total receipts of the profession. What other class of people would feel willing to contribute a proportional amount to the poor and do it from year to year uncomplainingly? The physician is worthy his hire the same as any one else, and it plainly is not the duty of the medical profession to donate so liberally to the poor of the city any more than it is for the grocer to give free supplies, the merchant free goods, the lawyer free services, or the laborer his day's work.

In these dispensaries are about 150 physicians. Their yearly work will average from $1,500 to $5,000 at regular office charges, which would make a yearly gift of $300,000 to $500,000. One high in the practice of medicine here in this city has estimated that in the hospitals and dispensaries of this city alone there is donated free to the inhabitants of the city yearly upwards of $1,000,000, and this without any extra charges for surgical operations, which would greatly add to it. Combine this with all the loss entailed by frauds practiced, which latter would probably greatly exceed this amount, and one can see that the two amounts are enormously large, far beyond any necessity or justice.

The younger members of the profession generally do the dispensary work, vainly hoping ofttimes to build up or start a practice thereby; but their usual experience is that when the patient is too ill to come or be brought to the dispensary, then the family physician is called in and the hopes of the dispensary doctor are dashed to the ground. His soliloquy then is that he failed to get a patient outside and he took from the family doctor, one, two, three or more office fees. Occasionally one has tact enough to start a practice from such an association, but this is not the rule, and furnishes the only hope to any physician in undertaking this kind of work.

The moral effect upon those patients who patronize dispensaries from time to time is eminently demoralizing. They learn to look upon the dispensaries as a part of their personal property, and the physician in attendance as one paid to work there and to whose services they are entitled, and this sentiment is so prevalent that the physician will be asked to go to the house to see a patient free, on the supposition that his salary is so liberal and his duties so wide-reaching that even free services at the house are included.

This present system then is plainly demoralizing, and is educating the people of this class to be dependent, or pauperish, instead of independent. Said two patients recently at a clinic: "Let me get out of here quick. I don't like this. I don't mind paying ten dollars to this." It took a great deal of persuasion to keep them for the clinical purpose, yet their remark and dress plainly proved their ability to employ a physician, and it also proved that dispensaries are abused. Others, property owners, are frank enough to say that they are taxed for the support of dispensaries in the city appropriations for their support, and hence they have a right to get their treatment free. One who had patronized a dispensary for several years died, leaving $7,000 in bank for his wife and twice that amount to the church of his faith. Nice for the wife, nicer for the church, nicest for the doctor!

Still another who was thoughtful enough to employ at her house the physician from the dispensary and whose husband was found to be in a steady and fairly remunerative position, said: "Doctor, do you think I will get well?" "Certainly," he replied. "I hope so," said she. "I hope to live many years yet to go to the dispensary." What a sweet morsel to the doctor!

I have cited these cases to show beyond question that this class of people are constantly becoming more and more dependent upon the charity so many abuse, and that the present system of dispensaries constantly fosters this spirit.

There is still another industry invaded by these institutions, and that is the business of the pharmacist. Some dispensaries furnish medicines free, others make a moderate charge. All these thousands of prescriptions are then, as the druggists rightly claim, turned into channels away from them, and for which privileges of business they pay high rents, licenses, years of study, etc. They have a right to feel aggrieved yet are powerless to remedy the provocation. The power lies, however, in the hands of the physicians if they would only act, and this city might be purged of what is plainly a public nuisance.

Germany and many other foreign countries are proud to supply medicines and physicians for their poor the same as they do shelter and food. Their system is to district their cities, salary a physician in each district, to treat the *poor* only of his district, and pay pharmacists for compounding prescriptions. The physician then feels recompensed for his work among the poor, the pharmacist feels protected and safe in his business, and that city feels that it does not overburden one class of its inhabitants in a charity, whilst it looks in detail to the wants of her poor and does not leave the sick to the care of benevolent societies, which are so poorly organized that a large proportion of the class they aim to reach have delayed medical assistance or no assistance at all. With such a system instituted the poor would at once know where to send for their physician, and it would also shut out the great number who abuse the dispensary service. I would advocate any system that has proved successful elsewhere, and it would prove a benefit to the profession at large here; first, to the younger members of the profession, as they would probably be the ones selected to do this work; and, second, to the older ones, as a certain class of their patients would call upon them if the opportunity to use a free dispensary were removed.

The power to change this *status rerum* rests in the hands of the physicians and in their hands alone. Measures should be introduced, legislative if necessary, to empower the districting of the city, the employment of a physician in each district, the listing of all in his district entitled to his free services, with power to refer doubtful cases to a proper committee, and the appointment of pharmacists to compound prescriptions. The advantages of this system would be to the physician and pharmacist protection in a business upon which they depend for a livelihood and which costs hundreds of dollars and years of study to fit one to enter; an equalization of the claims of the poor upon us all; the supplying to every one of a physician whom they can feel at perfect liberty to call, and the abolishing of a system that constantly encourages pauperism and dependence.

This change would in no sense interfere with the charity work of our benevolent societies or with the fields of charity open to the individual. All could find plenty still to do; but it would go farther than they all by systematizing what is now chaotic, by putting in easy reach of the poor what now they suffer ofttimes for, or, perhaps, may be deprived of altogether.

NOTE.—Since writing the above, the Society known as the "Physicians' Protective Alliance, of the City of Brooklyn," has been organized, and I see by the names of its officers that those high in standing in the profession from all schools are enlisted in it. This is certainly a step in the right direction, and it is hoped that among other benefits from this organization may be a remodelling of the institutions this article has taken as its theme.

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SARCOMA OF THE CHOROID.

BY RICHMOND LENNOX, M.D.,
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(Read with lantern demonstrations before the Brooklyn Pathological Society, Sept. 27, 1888.)

It is to the kindness of Dr. Mathewson that I am indebted for the specimens which it is my privilege to present to you this evening, as well as for the clinical histories accompanying them. They were hardened in the usual way in Mueller's fluid and alcohol, and cut in celloidin. Both eyeballs were somewhat shrunken at the end of the hardening process, and for demonstration this evening I will use the microscopical sections themselves as lantern slides.

The clinical history of the first case is as follows:

Mrs. J. G., 55 years old, seen November 25, 1887. O. S. Slight exophthalmus with swelling of side of face. V.$=^{20}/_{200}$. Optic disc swollen. The exophthalmus and swelling of face increased, and after a time a hard tumor could be felt in the orbit. The left eye was removed in April, 1888, together with some of orbital contents. In a short time the orbit was filled up with new growth, the swelling enlarged to nearly the size of a fist, and there were severe pain and headache. About the middle of last summer the swelling in and about the orbit began to decrease, and when the patient was seen a few weeks ago had become greatly reduced in size.

On removal, the eyeball was of normal size. Attached to its posterior part was a firm mass about as large as a hazel or small walnut. On section of the globe and extra-ocular mass, the appearances were those that are to be seen in Fig. 1, with the exception that only a portion of the orbital tumor is here represented, the rest having been removed for separate examination before this section was made. In consequence of a nearly central perforating ulcer of the cornea (Fig. 1, *a*), the aqueous humor has escaped, and the partly cataractous lens (*b*) is pressed forward nearly against the cornea. The anterior chamber is nearly abolished, the narrow space between cornea and lens being filled with the remains of the atrophied iris and with inflammatory exudation. The sclera has become folded in on one side, owing to the escape of some of the ocular contents through the ulcerated cornea and the consequent diminution of intra-ocular tension, but has its normal thickness except toward the posterior pole of the eyeball. Here its outline becomes irregular, and it is filled with islets of a more darkly stained tissue similar in general appearance to the extra-ocular mass. The inner surface of the sclera is lined by a layer of similar appearance (Fig. 1, *c*, *c*, *c*,), which is thicker at the posterior pole and in the ciliary region on either side than at the equator. This layer corresponds to the choroid and retina, replaced if you please by the neoplasm, to the inner surface of which are adherent portions of vitreous. The episcleral part of the tumor (Fig. 1, *d*,) shows in the section darker portions separated by irregular lighter streaks.

Into the detailed microscopical appearances I need hardly go, inasmuch as they do not differ from those usual to such eyes. Suffice to say that the extra-ocular mass as well as the thickened choroid consists of small spindle and round cells, with scarcely any intercellular substance and practically no pigment. The blood supply is moderate, and the tumor is undoubtedly a spindle-celled leuco-sarcoma of the diffuse variety with orbital extension.

In the second specimen we have a somewhat different picture. The history of the case is the following:

On May 18, 1885, L. H., 42 years old, presented himself at the Brooklyn Eye and Ear Hospital for failing vision in the right eye. His visual record then was: o. d. F. at 6 feet. o. s. $^{20}/_{30}$ with $+ ^{1}/_{36}$. In 1886, the right eye began to pain, and patient was advised to have it removed on account of suspected neoplasm, but did not take this advice till January 3, 1888, when the enucleation was performed. At this time the eyeball was considerably shrunken, and tumor masses were found in the orbit.

The eyeball was found to be considerably smaller than normal, and attached to its posterior surface was a dark brownish mass of irregular shape and somewhat fragile consistency about $^2/_3$ as large as the eyeball itself. Fig. 2 represents a section of both globe and tumor. The cornea is irregular in its outline and sclerosed. The iris is closely bound to the lens capsule by inflammatory exudation, and at the angle of the anterior chamber to the posterior surface of the cornea. It is covered with a layer of plastic exudation which also occludes the pupillary space. The lens is cataractous. Of the posterior tunics of the eye the sclera alone may be fully traced out. The retina has disappeared, except in places where a little of the outer nuclear layer may still be recognized, and the choroid has almost entirely lost its characteristics, the glass membrane alone of all its layers being distinct enough to be traced for any distance. The vitreous chamber is filled with inflammatory exudation, pigment granules and masses, altered vitreous, and sarcoma tissue which seems to have broken through from the choroidal portion of the tumor at its posterior part. At the back of the globe the sclera may be seen to be perforated by groups of pigmented sarcoma cells which are continuous with those of the extra-ocular portion of the tumor. This is divided into lobules by bands of connective tissue, the portions of the growth most removed from the eyeball containing the least pigment. Under the microscope these lobules may be seen to be made up of small round and spindle cells with a moderate amount of intercellular substance, the pigment being partly in, partly between the cells. On the whole, the eye is one which shows beside the actual choroidal neoplasm marked changes characteristic of a severe irido-choroiditis of a rather plastic nature. The thickening and alteration of the choroid which might otherwise be considered as of inflammatory origin, are stamped as neoplastic by the presence of the extra-ocular growth and the nearly complete perforation of the sclera.

In both of these specimens the changes visible on the screen are those due to the presence of the new growth, and also to the accompanying inflammatory process. I will now show you two other specimens in which there is less of a blending of the effects due to the neoplasm and of those due to the inflammation. The first specimen (Fig. 3,) is a circumscribed sarcoma of the choroid, somewhat pigmented and very rich in its blood supply. There are of course inflammatory changes in this specimen, but they are not of a sufficiently gross nature to show with the moderate enlargement which the lantern gives. The second specimen (Fig. 4,), however, shows changes which simulate somewhat a new growth, but which are solely due to inflammation,—an extensive organization of inflammatory products having taken place in the anterior part of the eye (Fig. 4, *b*,), enclosing portions of separated retina. In the course of the inflammation a perforating ulcer of the cornea developed with iris prolapse, and there is now at this point a polypoid protrusion and growth of granulation tissue (Fig. 4, *c*,).

To give an idea of the relative frequency of enucleation on account of sarcoma, I append a table showing the causes of enucleation in 2,100 cases, taken from the records of the several hospitals of New York and Brooklyn, with the exception of something less than 500 cases which have occurred at Dr. Knapp's Ophthalmic and Aural Institute, and for which I am indebted to the interesting paper by Dr. D'Oench in Knapp's Archives of Ophthalmology, xvi., 2. The table includes all cases of enucleation for a period of from eighteen to twenty successive years, with the exception of a few in the earlier years of the New York Eye and Ear Infirmary, in which the cause of operation was not given, and of 28 cases of "painful stump." The latter I have omitted as it is not certain just what was meant. Whether they were cases of phthisis bulbi, or perhaps secondary operations, where the whole or part of the eyeball had been previously removed, is not clear, and would seem to depend upon the individual surgeon's understanding of the term. In any case such a table as this can be but approximative, and the number of "painful stumps" would not materially affect the percentages as given. The percentage of sarcomata is unquestionably too small, as in certain cases of phthisis bulbi or irido-choroiditis,—perhaps of glaucoma—the eyeball would without doubt have been found to contain a new growth had a microscopical examination been made. We cannot, however, guess at such a factor, and all that we can say is that more than a third of the ocular tumors requiring enucleation were sarcomata.

CAUSES OF ENUCLEATION.

(2,100 cases taken from the reports of the several eye hospitals of New York and Brooklyn.)

INFLAMMATION (544 cases—25.89 per cent.).	CASES.	PER CENT.
Of orbit :		
Orbital cellulitis, - - - -	3	0.14
Syphilis with necrosis, - - -	1	0.04
Of globe :		
Panophthalmitis, - - - -	193	9.19
Iritis, - - - - - -	2	0.10
Kerato-iritis, - - - -	1	0.04
Irido-cyclitis, - - - -	66	3.14

	CASES.	PER CENT.
Irido-chloroiditis,	140	6.68
Cyclitis,	130	6.19
Choroiditis,	4	0.19
Keratitis suppurativa,	1	0.04
Keratitis with pannus,	3	0.14
RESULTS OF INFLAMMATORY PROCESSES (807 cases—38.43 per cent.).		
Sympathetic trouble:		
Inflammation,	173	8.24
Irritation,	30	1.43
Leucoma,	9	0.43
Phthisis bulbi,	368	17.53
Phthisis bulbi with ossification of choroid,	9	0.43
Phthisis bulbi with calcareous degeneration,	1	0.04
Symblepharon,	3	0.14
Capsular cataract with membranes in vitreous,	1	0.04
Cyst of Iris,	3	0.14
Hydrophthalmus,	7	0.34
Staphyloma,	31	1.48
Anterior (total),	122	5.81
Corneal,	24	1.14
Ciliary,	20	0.96
Of sclera,	5	0.24
Of Choroid,	1	0.04
GLAUCOMA (95 cases—4.54 per cent.).		
Absolute,	52	2.48
Chronic,	31	1.48
Secondary,	10	0.48
Hæmorrhagic,	2	0.10
INJURY (501 cases—23.86 per cent.).		
Of globe,	227	10.81
Of globe with foreign body in eye,	139	6.62
Wound of globe,	56	2.67
Rupture of globe,	53	2.53
Dislocated lens,	9	0.43
Hernia of iris,	1	0.04
Intra-ocular hæmorrhage,	8	0.38
Traumatic cataract,	8	0.38
TUMORS (144 cases—6.86 per cent.).		
Malignant disease,	12	0.57
Of orbit,	11	0.53
Of globe,	8	0.38
Sarcoma of uveal tract,	56	2.68
Carcinoma,	10	0.48
Enchondroma,	1	0.04
Granuloma of iris,	1	0.04
Glioma of retina	45	2.14
CONICAL CORNEA,	3	0.14
EXOPHTHALMUS,	3	0.14
DETACHMENT OF RETINA,	3	0.14
	2,100	100.00

Let me now ask your attention to some of the more general considerations of choroidal sarcomata, and especially to the question what can be gained for prognosis by a microscopical examination of eyes in which a tumor is diagnosed or suspected. Of course it establishes the diagnosis, and I need not mention here the appearances by which a choroidal sarcoma is recognized. They are those of ordinary sarcomata elsewhere.

We know what a grave prognosis the diagnosis of sarcoma gives, the enucleation proving curative in but six per cent. of the cases (Fuchs). It is difficult to trace the patients whose eyes we have enucleated, and accurate statistics in sufficient numbers are therefore not easily obtained. Fuchs has, however, followed up seventeen cases in his own experience in which the diagnosis of sarcoma of the choroid was positively made. Of these thirteen had already died, the majority certainly from metastatic growths in the liver, and in only one case was there any probability of a permanent cure by the enucleation, four years having already elapsed without any evidence of further trouble. However certain sarcomata are undoubtedly less malignant than others, and in so far a microscopical examination of the growth may modify our prognosis even when the diagnosis is established. What are the elements of malignancy, and what the factors to be considered in a prognosis? We measure the malignancy of a tumor by the rapidity of its development, the occurrence of secondary growths after removal, the formation of metastases, and by the cachexia. Local secondary growths are more apt to occur within six months after the enucleation; and although cases have been recorded in which there has been a local recurrence after seven or even nine years, such cases are so rare that it seems practically safe to assume that after four years immunity the danger of local recurrence is past.

Of great influence in such local recurrence is the time at which the enucleation is performed. The course of choroidal sarcomata may be divided, as Knapp has suggested, into four stages:

1st. The stage of growth without ocular irritation.

2d. Inflammatory stage (which may resemble an attack of glaucoma, or a severe irido-cyclitis with exudation).

3d. Stage characterized by the appearance of extra-ocular nodules.

4th. Stage of generalization (metastases).

Statistics by Fuchs show that when the enucleation occurred in the first stage, there was not a single case of local recurrence. After operations in the second stage, there was a reappearance of the growth in the orbit in a little over five per cent When however the operation was deferred until after the appearance of episcleral portions of tumor,

Fig. 1

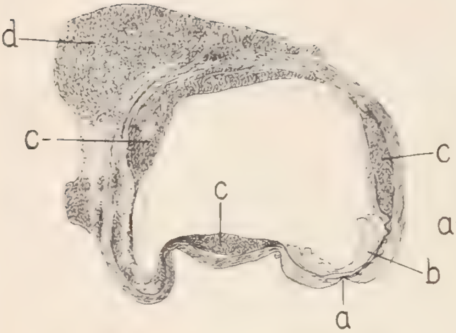


Fig. 2.

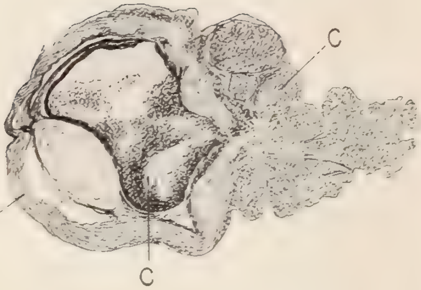


Fig. 3.

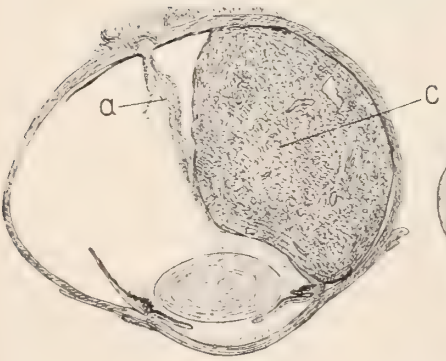
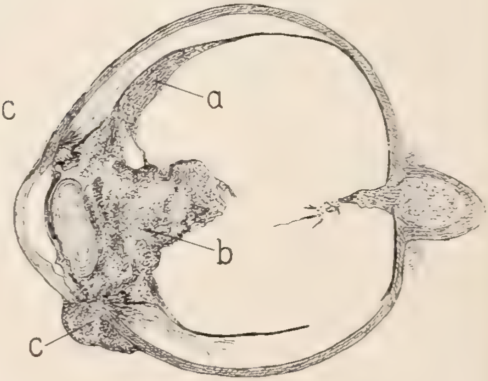


Fig. 4.



R.L. del

Sarcoma of choroid

local recurrence took place in twenty-two per cent. The removal of secondary growths has of course much less prospect of success than the primary operation.

Metastases show a somewhat different relation to the original tumor than do the local secondary growths. In the first place, they are more frequent, and, in the second place, their occurrence seems to have no dependence upon the time of operation. An enucleation even in the first stage of a choroidal sarcoma gives no greater protection from metastases than does the deferred operation. Metastases usually occur within two years, and no case has been reported in which they have shown themselves after five years.

Having thus briefly considered the elements of malignancy, let us see what the factors in our prognosis are, bearing in mind the fact that in sarcoma the blood-vessels are the channels of infection. Of influence in this regard are the location and extent of the growth, the presence of pigment, the size and shape of the cells (with perhaps their capability of motion), the firmness of the intercellular substance, the number of blood-vessels in the growth, their caliber and the thickness of their walls, and finally the vital energy of the cells and their power of proliferation in the organs to which they may be carried. This last factor cannot of course be estimated with the microscope, except perhaps in so far as it has to do with the amount of pigment the cells contain. The melanotic sarcomata are undoubtedly more liable to be followed by metastases than the leuco-sarcomata, even allowing for the fact that the latter are more frequently located in the anterior part of the eye and hence more easily recognized and removed. The spindle-celled sarcomata are somewhat less malignant than the round-celled, as they grow more slowly and are more rarely followed by secondary growths and metastases.

One can thus say that the leuco, the spindle-celled, and the but slightly vascular sarcomata, especially if operated upon before the appearance of episcleral nodules, give the better prognosis, even although the total number of cases of undoubted immunity after operation be but six per cent.

In conclusion, let me here express my hearty thanks and obligation to Dr. Mathewson for his kindness, and to Dr. Hunt for his courtesy in arranging the lantern demonstration.

EXPLANATION OF PLATE.

FIG. 1.—*a*, perforating ulcer of cornea; *b*, part of lens; *c*, *c*, *c*, intra-ocular portion of tumor; *d*, extra-ocular portion of tumor.

FIG. 2.—*a*, sclerosed cornea; *c*, *c*, tumor masses.

FIG. 3.—*a*, detached retina; *c*, tumor.

FIG. 4.—*a*, hæmorrhage; *b*, organized inflammatory exudation with remains of retina; *c*, polypoid granulations at site of old perforating ulcer.

THE NEURAL DISORDERS OF WRITERS AND ARTISANS.

BY GEORGE G. HOPKINS, A.M., M.D.

Read before the Clinical Club.

In the following article I have laid no stress upon the symptom of "*cramp*" in these disorders, as I consider it a non-essential symptom, and more often absent than present, and should not therefore give the name to the disease. Several cases of cramp alone in performing these co-ordinate actions, which have fallen under the writer's observation, were not deemed to properly belong to this subject.

A person playing the piano is seized with a cramp in one or more fingers, occasionally, which is so painful as to cause her to stop and grasp the finger or fingers with the other hand, and hold it or them in a special position in order to relieve the spasm. In a few minutes the pain will pass away, and the person may renew her occupation without further interruption.

I recall the case of one person who played the piano very skillfully at the age of ninety-three years. She had suffered for many years with "cramps" in the fingers when performing on the piano, and would occasionally be compelled to stop in the midst of a piece to relieve the cramp. The difficulty remained about the same always, and she never had any treatment for it. I do not know the condition during the last two years of her life; she was ninety-five years old when she died.

This class of cases will persist for a lifetime without any aggravation of symptoms. In this group of neuroses are included the ataxia of writers, telegraphers, type-writers, tailors, sewing-girls, shoemakers, pianists, etc., etc., or in fact any occupation which requires the hand to do "some highly specialized action involving numerous and complicated muscular movements."

The symptoms of this group of diseases are due either to disturbance of the whole chain of phenomena involved in co-ordinate actions or to disturbance in only one link in the chain of movements producing the special action.

It may be cerebral, spinal, or peripheral, as regards the nervous system; apoplexy affecting the brain, the cord, or peripheral nerves; it may be myelitis, etc., etc.

The constant use of muscles, up to a certain point, increases dextral efficiency and enhances their strength. Beyond this certain point, if exertion is pushed, the result will be loss of dexterity and feebleness. In typical cases of this disease, such is usually the condition.

The cause of this disturbance of prehension in writing differs materially in different cases. In typical cases, the whole chain of phenomena involved in the production of the act of writing is disturbed more or less, and the co-ordinating centre is unable to exert its wonted authority and produce the almost automatic action which we "*will*" to be accomplished.

In the non-typical case, only one link in the whole chain is disturbed from some intercurrent affection which is entirely independent of the especial occupation of the patient. It may be a peripheral neuritis, from cold, or injury, or poison, or constitutional disease, a sclerosis of the spinal cord, or disease of the cerebrum. It is in many cases the earliest symptom of cerebral apoplexy. Hysterical cases are not infrequent.

When from any cause the general system is depressed and its recuperative powers impaired, deviation to any degree from the normal use of a function may result in disease. Each one of us has a vulnerable point in his armor; but why and wherefore we differ in these respects, physiologists have not yet informed us. Why we each respond differently by diseased action, from the same exciting cause, is difficult to understand. One, by exposure to cold, will develop rheumatism; in another it is neuralgia; in one endocarditis, in another pericarditis; in one pneumonia, in another bronchitis; in one pleurisy, in another diarrhœa. If sanitarians will tell us what are the exact conditions within each system that invite to particular diseases, as well as the conditions that predispose to disease in general, then will our methods of diagnosis and treatment become more exact.

Yet given any one of the numerous causes that produce disease, and have it act on a number of different individuals, the rule is that it will cause disease in the weakest, or the one less able from any cause to resist diseased action. Even in germ disease we must not only have the proper pabulum for the germ to develop in within the system, but there must be the exciting cause to invite action.

Vast numbers of disease germs go to destruction (even where no preventive measures are used) to one that finds a proper nidus and infects. It is said to take a ton of lead to kill one man in battle. So with this form of disease, there are very few cases, compared with those who follow the occupations, in which it is likely to develop.

The typical cases are most hopeful as to prognosis, and therefore most satisfactory as to treatment. When this class of cases come under treatment early in their course, before secondary changes have occurred, it is usually safe to promise a complete cure, if the patient is able to carry out directions, or can be persuaded that it is absolutely necessary for him to pay strict and faithful attention to the measures of treatment laid down for him by his physician.

In the non-typical cases the prognosis should be guarded, and is usually hopeless as regards permanent cure. Yet treatment even in these cases is of great benefit, in giving the patient much longer use of the member than would be the case if it were left to itself.

In the causation of the disease, in what might be called typical cases, tobacco and alcohol have been most frequently accredited with the causation; with this opinion my own observation coincides.

A case in point came under my observation in 1871.

Edward D., aged thirty years, book-keeper by profession. General health good. Family history presents numerous cases of severe neuralgia. His brother was at the time under my care for one of the most intensely painful attacks of neuralgia that I have ever seen; but it yielded promptly to iron and quinine. He had been an excessive smoker, otherwise his habits were good and regular.

He consulted me, April 28, 1871.

He had been doing an extra amount of writing for the two weeks previous, and had worked early and late. While at work he smoked incessantly. On the day he consulted me, and without any previous symptom that he had noticed, he found his pen refusing to do his bidding, and it was entirely out of his control.

The suddenness of the attack suggested to my mind lead poisoning, but no indication of lead absorption or history of such ingestion could be ascertained. There was little, if any, defect in general muscular tone and strength. The power of the right hand being nearly if not quite equal to that of the left hand, the "grip" being strong and firm. The muscular power of the right thumb was somewhat deficient in strength as compared with that of the other side. Perfect rest of the hand was enforced; tobacco absolutely prohibited. Argenti nitras, gr. $\frac{1}{8}$, in pill form was prescribed three times a day.

Faradization of the muscles of forearm and hand was practiced daily, exercising each muscle separately, so far as they could be isolated. Each séance lasted about ten minutes.

Improvement was very rapid, and by the eleventh day of treatment the patient was convalescent and able to write legibly and easily, the restoration of function having been regular and constant. The treatment *in toto* was continued for five days longer. The patient then returned to work on the seventeenth day of treatment, as he felt perfectly able to work, and there being no disturbance of function even after prolonged writing. I had many misgivings as to the wisdom of this early return to work and as to the permanency of the cure, his business being very exacting; but as seventeen years have passed and he has had no return of trouble, my fears have fortunately proved groundless.

My ordinary treatment is rest, silver, and galvanism. These measures, with tonics and attention to personal hygiene, will in the vast majority of typical cases produce a cure, if employed early in the affection.

I have now under my care a telegraph operator, who was formerly one of the most rapid operators in the Western Union, having a peculiarly delicate touch with his middle finger.

He has for several years been unable to use that finger for operating, and has experienced no trouble with his other fingers; but he has lost his peculiar delicacy of touch, though still a very rapid operator, his hand and fingers being useful for every other purpose.

I would draw a broad line of distinction between those which I have termed typical cases, and another large and interesting group which I term non-typical, as they are only symptoms of serious constitutional diseases.

The subjoined case might be considered intermediate between these two classes. Mrs. M. M. consulted me first in 1868. She was then aged fifty-three years, and had six children. Was of decidedly neurasthenic type of constitution; general health good.

Owing to financial reverses, was compelled to aid in the support of her family. In pursuance of this object, opened a day and boarding school. She conducted all the correspondence herself, but the amount of writing required could hardly be said to be excessive. The school was continued for two years. It was not until after it was discontinued that she became aware of any defect in her ability to use the pen with ease. The first defect that was noticed was the dropping off the end of some words and being unable to complete them, yet able to begin the next word and go on all right for a while.

As the symptoms increased, she was unable to write more than two lines at a time, cutting off the last few letters of some words and ending in an unintelligible scrawl, unable to write any more at the time.

A week of rest would usually enable her to write two or three pages of commercial note paper, but by the time that she reached the fourth page her control of the pen would be enterely lost and she would be compelled to stop short.

I prescribed tonics and prolonged rest, but for two years rest was impracticable. More leisure brought improvement in all her symptoms during 1871, and in 1872 she was able to write as well as ever. I did not use electricity in any form in this case, as the patient lived at a great distance, and has only been seen once or twice a year, the treatment being conducted principally by correspondence. During the last few years she has had a partial return of the symptoms of the disease. Usually able to write two pages, at least, without difficulty, yet often having to desist at the third page. At other times being able to write long letters without showing any signs of disease. Her general health is at present good.

I have noted this disease as one of the initial symptoms, indicating disease of the spinal or cerebral centres.

I have seen at least two cases where the ataxis was certainly due to cerebral congestion, if not to pressure from a clot.

Mrs. ——, aged 45 years, married, has passed the menopausis. She was born and brought up in Savaanah, Ga., in affluent circumstances, but her husband lost everything by the late war. Since then she has been compelled to do her own household work and sewing for herself and husband.

Consulted me in July, 1871. She was suffering from intermittent fever, was very anæmic and very much debilitated. She complained of numbness of the thumb and forefinger of the right hand when attempting to sew; she could sew only for a very few minutes at a time, being then compelled to desist on account of numbness and want of power to continue to hold and direct the needle. It was only the attempt to sew that produced these symptoms. Several of her near relatives, among them her father, had died of apoplexy at about her age, and she was afraid that the anæsthesia was due to an impending attack with her.

The malarial fever was first controlled with appropriate remedies. The digestive apparatus was put in order and the general health improved by mild tonics. Extreme caution urged in regard to the daily evacuation of the bowels.

She responded promptly to treatment as to her general health. With the improvement in her general health the anæsthesia became less, and she was enabled to sew for a much longer time before the ataxia would return. The electrical currents were not tolerated in this case.

I used at first the constant current, varying the number of cells, at different séances, but the most feeble current produced vertigo. I then resorted to the Faradic current with like result. My diagnosis in this case was that there was a cerebral cause for the ataxia, and the action of the electrical currents would seem to confirm that diagnosis. This case was under observation several years, but has been lost sight of.

Mr. P——, aged 53 years, tailor, large man, full habit, consulted me three years since for difficulty in using the shears for cutting out clothing, the shears seeming to go where they pleased, but not where he desired. This was a more troublesome symptom if the goods on which he had to work were of fine quality, and he was very anxious not to make anv mistake. On plain goods at first there was no difficulty. There was not any difficulty in using the needle.

On June 1, 1888, he had an attack of cerebral apoplexy, causing paralysis of the right side of the body. I had diagnosed this case as probably of cerebral origin.*

Ataxia is due to the interference with the co-ordinating centre of the spinal cord. To some extent this centre is under control of the cerebrum, the acquirement of co-ordinate action in many of its manifestations, is a matter of education, yet it eventually become almost automatic.

In the inco-ordination of writers (often exemplified by cramp) the endeavor to exert the *will* usually makes bad matters worse. But let the patient have some engrossing or exciting thought to occupy the mind, such as indignation or great pleasure, and the act may be accomplished with perfect facility Yet the moment the mind is released from preoccupation and brought back to dwell upon the action to be performed, the difficulty of execution at once returns, and the writer or artisan must desist in the exercise of his or her profession. The fact of being watched by any one while in exercise of their occupation (especially one from whom adverse criticism is to be expected) will greatly aggravate the symptoms.

The methods of treatment have been varied and numerous. Wolff's massage and gymnastics is now the most fashionable.

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AN INTERESTING CASE OF HYDRO-PYO-NEPHROSIS.

BY WILLARD PARKER BEACH, M.D.

The following history, being that of an obscure case which has not yet run its course, is of interest, regarding not only its past career, but also the treatment best to pursue in the future.

Mr. A. is a man twenty-nine years of age, who has an excellent family history, and had always enjoyed good health, with the exception of the usual diseases of childhood, and a certain accident which may have some bearing on his present trouble. When seventeen years of age he fell from a height, and struck on his right side, over the region of his kidney. He was much prostrated and suffered great local pain, and shortly afterwards passed large quantities of blood from the bladder. The hæmorrhage and pain continued for one week, after which he slowly but thoroughly recovered, and returned to his business in three weeks from the time he was hurt, apparently well.

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* Died November 1, 1888.

He contracted his first and only attack of gonorrhœa in November, 1887, which ran the usual course, and was about cured when he came to my office, January 21, 1888, complaining of great pain in the region of the right kidney, which shot down the ureter and inner side of the thigh. He also suffered from severe vesical tenesmus and nausea, with retraction of the right testicle. In a few hours his temperature rose to 104½° F., and he commenced to pass blood and pus per urethram. The blood ceased to appear in the urine after twenty-four hours, and has not been present since. The pus continued to flow in large quantities. This attack lasted for some hours, but under the influence of anodyne suppositories and rest in bed it gradually subsided. The patient continued to have attacks similar to the above for several months, getting better and worse at times.

There was no indication of stone in the bladder elicited by sounds, and no tenderness of the prostate or base of the bladder could be discovered per rectum.

The diagnosis to which I was consequently led was that of renal colic, from an impacted uretal calculus (?). The man, however, continued to lose ground, and a consultation was subsequently held with Dr. Wm. T. Bull, of New York, with a view to operation. The doctor fully endorsed the diagnosis, and also advised operation for the purpose of exploration, if nothing more.

The patient was operated upon in the New York Hospital, on July 10, 1888, by Dr. Bull.

An oblique incision, similar to that for a lumbar colotomy, was made, about five inches in length; after reaching the kidney fat, it was separated, when we found a very much thickened and enlarged renal pelvis. The sac was filled with fluid. It was stitched to the muscular tissues, and incised, when nearly one quart of fluid escaped. This fluid was amber colored, and contained no albumen, casts, or urea, was alkaline in reaction, and did not have a urinary odor. It thus became a question as to the source of the liquid.

The patient rallied promptly from the operation, and the urine, which up to this time had contained pus and albumen in large quantities, became absolutely normal. His pain also disappeared, and he improved very rapidly.

At the present time, nearly ten months after his first attack and a little over three months after he was operated upon, he is attending to his former business (drug clerk), working fourteen hours a day with comparatively no inconvenience, and seemingly enjoying the best of health; but there is now a permanent fistula communicating with the dilated pelvis of the right kidney, from which there daily escapes about twelve ounces of fluid, which contains urea, smells like urine, and has a neutral reaction. He passes about thirty-eight ounces of normal urine from the bladder daily.

The interesting and doubtful points in this case are:

1st. The cause of the colic; whether due to a calculus, to uretal inflammation, or secondary to the injury received in childhood?

2d. The present condition of the right kidney, its pelvis and ureter?

3d. Prognosis?

4th. Treatment? Whether it be the wiser plan to operate with a hope of safely dissecting the sac out, and removing the kidney or what may be left of it; or to allow the man to go through life with a permanent drain in his back, and a very faint hope that some day it may possibly close?

THE BROOKLYN MEDICAL JOURNAL.

EDITORIAL.

ISOLATION WARDS IN HOSPITALS.

There is not a hospital in the city whose arrangements are such as to permit it to receive cases of contagious disease. In point of fact, there is no intention to receive and care for such cases. Occasionally contagious diseases are developed after admission, and these rarely fail to produce a certain amount of consternation, for the reason that no proper arrangements exist for their isolation and subsequent effective disinfection. In the present state of knowledge of the efficient care and quarantine of contagious disease, this inability of the hospitals to provide for the urgent needs of the city is a confession of inadequacy of hospital management, and an expression of wholly unwarrantable fear of inability to limit and control contagion. What right has a hospital, supported by charitable contribution and bequest and aided from the city treasury, to answer that it cannot do with safety what is done in a thousand homes from necessity and with the impunity that comes from competent quarantine! What is the daily experience in private houses, with all their disadvantages, is infinitely more possible of accomplishment in a public institution, where the strictest discipline and isolation can be rigidly enforced. No one could plead too earnestly for the keenest appreciation of the dire consequences resultant from diphtheria and scarlet fever, or urge too incessantly the most advanced information in restricting its spread. But, in the public interest, there is nothing gained by overstating the case, and the mild or recovering cases of either are vastly out of proportion to the fatal cases. In poor surroundings and in good, one case of either does not necessitate that others must follow. It is to the credit and skill of the medical profession that a second case in the family is not the rule. The limits of contagion are known, and it is possible to effect an absolute quarantine.

These are not cases for the pest-house, and in a private family it would never be suggested that they require hospital control. But when these diseases appear in a hotel or boarding-house, or when they attack any one of that vast populace that are in service or lodgings, there is, naturally, serious risk to the patient because of the inadequate attendance. and there is a proper fear among those who can scarcely fail to be exposed because of the impossibility of providing proper isolation. For these people, with any other and non-contagious disease, there is little difficulty in providing immediate and humane hospital care. But the doors are barred against the contagious disease, and the alternatives are the risk and inadequacy of domiciliary attention and transportation to the county pest-house. The alternative is unwise and and inhuman. If the hospital authorities would provide proper isolation wards, either under the roof of the general building or in a separate structure, these cases could be received as other cases are received that require hospital treatment, and with absolute immunity from risk of infecting any portion of the hospital. A very few conditions are requisite to furnish this immunity, viz.: separate ingress; such a construction of walls, flooring, and furniture as will minimize the lodgment of contagium and facilitate effective disinfection; and, finally, the proper government of attendants. These are easily practicable and inoffensive.

In deference to the public prejudice, it would nullify the humane intent if these wards were to be stigmatized with any opprobrious title of contagious wards. The simple fact should be that cases of scarlatina and diphtheria would be cared for in any of the hospitals. The admission should be easy, and it should be prompt; and it could easily be saved from abuse by proper regulation ordered by the hospital authorities. Much human life could be saved if, on the first detection of a case of diphtheria or scarlet fever, it could be removed without prejudice from the unwholesome surroundings and incompetent attendance of tenement-house life to the perfect ventilation and skilled care and appliance in the isolation wards of the city hospitals.

Within a very short period, the staff of one of our hospitals presented an urgent plea to the hospital committee to provide isolation wards for cases of contagious disease that occasionally develop within the institution. The proposal was carefully considered, and will, unquestionably, be acted upon at once. This is the need of every hospital; but this is not enough. The hospitals are for the benefit and protection of the community, and the community has no more urgent need of the hospitals than to give proper care to cases of contagious disease. By such action on the part of all the hospital authorities, the city would be saved from great peril and disaster.

During the past summer a child died from diphtheria in a wretched tenement in this city. The mother took the disease, and, on the urgent plea of the physician, the superintendent of a hospital in this city strained a point and admitted her for treatment. The change to fresh air and comfortable surroundings and competent care saved a life that otherwise would have been sacrificed. It was a noble and a Christian act of that officer. But this ought to be the rule and not the rare, if indeed it be not an unprecedented, exception. The physicians who have hospital appointments could secure this revolution if they would; and there can be little doubt that, with the improved opportunities for study, the treatment of these diseases could be subjected to accurate test. The combined skill of a hospital staff, under the most favorable conditions, could eliminate much that is useless and ineffective, and systematize the efficient appliances and modes of treatment, which selection is not possible when physicians are working separately. The results of corporate work in hospitals are for the benefit of the community; and the community has a right to demand this of the hospitals, for the people support them. They are for the protection of the people, and they fail of their highest duty when they delay in providing for the protection of the people against their direst peril.

NUMBER THE HOUSES PLAINLY.

It is not always easy to find the house one is searching for in the daytime and immeasureably more difficult and exasperating is the task at night, even when the moon is on duty. The long rows of houses of uniform construction, the infrequency of gas lamps and the idiotic system of placing the numbers on front doors, make the locating of the sought house extremely difficult. Most houses are provided with front and vestibule doors; the outer door in two parts, each provided with a fan-light in the upper part; on one of which is painted the "No." and on the other the figures. The latter is usually swung back against the side of the vestibule. There is rarely a light in the vestibule, and if one is kept burning in the inside hall it is rendered well nigh useless for the outsider by reason of the chromatic or fancy glass in the vestibule door through which no clear light can penetrate. The fronts of houses in the city are rarely illuminated, and even if the parlors are occasionally brilliant, the expected guests, the doctor, expressman and parcels-delivery have to ring some bell at random to find out a basis of reckoning for the desired number, or light matches in various vestibules to see the number on the inside door.

There is not a house in town into which a doctor does not enter more or less frequently, and the numerous guests and tradesmen who suffer from the architect's stupidity, might join hands with him in effecting a change in this ridiculous method of numbering the houses. The numbers should be painted in bold figures on each half of the front door. This would make the street lamps available. A light should be kept burning in the hallway, if it were not practicable to have one in the vestibule. Apart from this inconvenience, it ought to be held a duty to the wayfarer to keep some sort of a light in the fronts of city houses, not only "to guide the lonely traveler on his way," and enable him to find his friends with ease, but as a private contribution to the cheerfulness of city life. It is a solemn and dreary walk past the long rows of similar and unlighted houses in the evening. A few cents worth of gas at the expense of each householder might make the evening walk a pleasant one.

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PHYSICIANS' PROTECTIVE ALLIANCE OF THE CITY OF BROOKLYN.

The above organization was formed on October 8th. Its aims are primarily to protect physicians from being defrauded by patients who *can*, but who *will not* pay just bills rendered them for medical aid. Any legal practitioner of medicine of Brooklyn may become a member of the Alliance by signing the Constitution and paying the initiation fee of $2 and the current annual dues, which are also $2. The officers of the Alliance are a President, Vice-President, Secretary, Treasurer, and seven Governors. The officers proper are members *ex-officio* of the Board of Governors which thus consists of eleven members.

A list of delinquents with addresses, after it has been revised and approved by the Board of Governors, will be printed and a copy supplied for the private information and use of each member. It is the duty of the secretary to supply to members such information in regard to delinquents as he may have officially acquired, whenever it may be called for.

It is expected that each member of the Alliance will report to the secretary the accounts of such delinquent debtors on his books as are not collectible by the ordinary methods, and also to notify him of payments made upon the same, and to avoid construing the objects of the Alliance as in any way interfering with the physicians' charitable obligations to the worth poor.

The present is too early in the history of the Alliance to judge accurately of its practical workings and final success. The meeting for organization was large and enthusiastic; the officers chosen include physicians from both schools of practice of the most conservative character and of highest repute; the constitution adopted is comprehensive yet guarded in all its features, and the interests of the debtor as well as the creditor have been jealously guarded. The wide-spread interest in the plan and purposes of the organization among the practitioners at large would seem to indicate that it is destined to play an important part in the future of medical practice in this city.

THE LONG ISLAND COLLEGE HOSPITAL.

The regular term, which commenced September 26th, is attended by the largest class that has ever matriculated. It is probable that the total number during the collegiate year will be not far from two hundred. The lectures on physiology, histology and pathology are now given in the Hoagland Laboratory, and all the practical instruction in the microscope is given in the same building. In the College building increased facilities have been provided. Among them are lockers for the students, and a reading-room in which the best medical journals of the country may be found.

THE HOAGLAND LABORATORY.

The trustees of the Hoagland Laboratory have announced the completion of the laboratory and its equipment for practical work. Special facilities are offered to those who desire to prosecute original research. For this purpose private laboratories have been provided, and arrangements are now being made for the purchase of a library which shall contain all the literature necessary for reference in the departments of bacteriology, physiology and pathology.

Owing to the absence in the South of Dr. George M. Sternberg, the Director, in the further prosecution of his investigations into the cause of yellow fever under orders from the President of the United States, the course of lectures on bacteriology, already announced, will be postponed until his return, which will probably be in November.

The further announcement is made that the services of Geo. T. Kemp, Ph.D., Johns Hopkins University, have been obtained as Associate in Bacteriology and Physiology, and that, with his assistance and under the direction of Dr. Sternberg, practical instruction in bacteriology will be given during the winter and spring. Inasmuch as Dr. Kemp will be at the laboratory daily from 9 A. M. until 5 P. M., this instruction can be taken at any time during these hours.

The apparatus which has been provided for this course is of the best, and is a duplicate of that which is now in Koch's laboratory; it has recently arrived from Berlin. The microscopes are of the Leitz pattern and are provided with the Abbé condenser and one-twelfth inch oil-immersion lenses. A full set of cultures has been obtained, some from Koch's laboratory and the others from the pathological laboratory of Johns Hopkins University.

The fee for this course of instruction has been placed at $15, which entitles the subscriber to prosecute his studies until June 1, 1889, during as many hours of the day as he may desire.

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TYPHOID FEVER REPORTS.

It will be noticed, by reference to the report of vital statistics which is published monthly in the JOURNAL, that the reported cases of typhoid fever are not given by the Health Department. On inquiry we learn that but few cases of this disease are now reported by physicians. Why there should be a falling off in these reports we do not know. It certainly is not due to any scarcity of cases in the city, for it seems to be universally acknowledged that typhoid is very prevalent at the present time, and the number of deaths would also indicate the existence of a considerable number of cases. We have thought that the neglect to report typhoid cases might be due to a misconception on the part of physicians as to the action taken by the Health Department at the request of the Medical Society. This action is recorded in the March number of the JOURNAL and had reference only to the removal of the restrictions which prevented children, who lived in houses where typhoid fever existed, from attending school, and required that all persons dying from typhoid should be buried within twenty-four hours and the funeral to be strictly private. The ordinance requiring all typhoid fever cases to be reported within twenty-four hours is still in force, and the Health Commissioner expects that physicians will comply with this law. He has recently issued the following notice: "At the request of the County Medical Society, the Department Rules and Regulations relating to Contagious Diseases have been modified in cases of Typhoid Fever, by not enforcing the quarantine.

"A report of all such cases is still required, for the purpose of continuing the records, and also that an inspection may be made to determine the sanitary condition of the premises."

This requirement should be fully met, as the record of such cases is extremely valuable for statistical purposes if complete, and even if incomplete it serves as a basis for preventive action by the Department.

OBITUARY.

JAMES CRANE, M.D.

The death of Dr. Crane, which took place October 31st, was not unexpected. For more than four years he had been an invalid, and more than once during that time his life was despaired of, but his vigorous constitution withstood these apparently fatal attacks, until but a few days before his death, when he was seized with congestive apoplexy from which he never rallied.

He was born March 6, 1818, in Newark, N. J., and obtained an academic education at Dr. John Halsey's school in Elizabeth, and entered Princeton College in 1832, where he took his degree of A. M. On leaving college he determined on the profession of medicine, and entered the office of Dr. Davis in Elizabeth. There he remained until he removed to Philadelphia, where he entered the office of Dr. George B. McClellan. He took a medical course in Jefferson Medical College, graduating in 1839. Removing to New York he practiced in that city for several years. He was connected with the New York Dispensary, and for five years with the Northern Dispensary. He was married in 1842 to Aletta, daughter of Thomas A. Hartwell, of Somerville, N. J. In 1845 he removed to Brooklyn, where he speedily obtained a very lucrative practice, and made a large circle of social and professional friends. In 1847 he was appointed attendant physician at the Brooklyn City Hospital, and retained his connection with that hospital until 1877, when he resigned. In 1866 Dr. Crane was appointed by Governor Fenton to represent Brooklyn's interests in the Metropolitan Board of Health, and he filled that office with credit and distinction until the dissolution of the organization. On June 26, 1877, he was appointed president of the Brooklyn Board of Health. He was a member of the New York Academy of Medicine and one of the originators and effective members of the Philological Society of New York. He was a member of the Medical Society of the County of Kings, and of the Brooklyn Medical and Surgical Society. His wife died about six years ago, and three daughters survive their father. The funeral services took place at his residence, 163 Clinton Street, on November 2d.

Dr. Crane, during his active life, was one of the leading physicians of Brooklyn, and inspired the confidence of his patients and the admiration of his professional brethren. In his public life, as Health Commissioner, he was fearless and aggressive, and those who were intimately associated with him know that he would never compromise any matter which affected the sanitary interests of the city. He was in all relations of life true and trustworthy, and leaves behind him a stainless reputation.

PROCEEDINGS OF SOCIETIES.

THE MEDICAL SOCIETY OF THE COUNTY OF KINGS.

A regular monthly meeting of the Medical Society of the County of Kings was held at the rooms of the Society, No. 356 Bridge Street, Brooklyn, on October 16, 1888, at 8 o'clock.

Dr. Wallace in the chair; Dr. W. M. Hutchinson, Secretary.

There were about fifty members present.

The minutes of the last meeting were read and approved.

The Council reported the following propositions for membership, viz.:

Dr. Mary R. Owen, 239 Bergen Street, Woman's Medical College, Baltimore, M. D., 1883. Proposed by Dr. W. M. Hutchinson; seconded by Dr. E. J. Chapin Minard. Dr. Louis M. Dusseldorf, 251 Hoyt Street, L. I. College Hospital, 1888. Proposed by Dr. J. A. McCorkle; seconded by Dr. W. M. Hutchinson. Dr. Fred. J. Shoop, 80 Hanson Place, College Physicians and Surgeons, 1883. Proposed by Dr. A. W. Catlin; seconded by Dr. W. M. Hutchinson. Dr. Julius A. Freeman, 80 Hanson Place, Chicago Medical College, 1877. Proposed by Dr. A. W. Catlin; seconded by Dr. W. M. Hutchinson.

The Council reported favorably upon the applications of Drs. Henry Conkling, B. F. Welsh, A. F. Carroll, James Downie, Joseph O'Grady, Lefferts A. McClelland, J. E. Dusseldorf, John Morgan, Christopher Lott and J. J. Keyes, and recommended that they be admitted to membership.

SCIENTIFIC BUSINESS.

Dr. A. J. C. Skene, read a paper on Pelvic Cellulitis, which was followed by a paper, entitled "Report of a Case of High Temperature following Parturition," by Dr. H. N. Read.

These papers were discussed by Drs. Skene, Fowler, Bogart, Buckmaster and Jones.

The Chair announced the death of Dr. W. M. Thallon, and stated that the Society had been requested by Dr. Thallon's widow to accept the two engravings which Dr. Thallon had placed on the walls of the Society's rooms.

On motion of Dr. Burge, a vote of thanks was tendered Mrs. Thallon for this donation.

On motion, duly seconded, the Chair appointed the following Obituary Committee to draft resolutions relative to the death of Dr. Thallon, viz.: Drs. Bunker, Fowler and Pratt.

NEW BUSINESS.

Dr. Prout called the attention of the Society to the fact that the list of gentlemen recommended for election to membership was not announced on the card sent to members, bearing the general announcement of regular meetings, and suggested that, as this was the custom in other medical societies, hereafter such a list be printed on the call for each regular meeting. The Chair stated that he would bring the matter before the Council.

Dr. Bogart moved that a copy of the BROOKLYN MEDICAL JOURNAL be sent to each of the house staffs in the different hospitals in the City of Brooklyn for the use of the members of each respective staff. After some discussion this motion was seconded and carried.

There being no further business, on motion, the meeting adjourned.

W. M. HUTCHINSON,
Secretary.

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KINGS CO. BOARD OF PHARMACY.

BROOKLYN, July 26th, 1888.

Mr. President and Gentlemen of the Kings County Pharmaceutical Society:

Another three years have rolled by, and again the Board of Pharmacy asks you to conform to the law and show your appreciation of the benefits the Pharmacy Act has conferred upon the druggists of this county, by appointing members to fill the vacancies in the Board caused by expiration of term of office.

As has been the custom, we present for your consideration information of our doings for the past three years.

It has ever been the wish of the Board to construe and apply the law for the benefit of not only those directly engaged in the business of dispensing drugs, nor only for those who prescribe and apply the same, but also for that large class of the public whose interest is confined to consuming the many medicines so prescribed and dispensed. The consideration of this last class is probably the most important, as it is the great excuse for the enactment of the law.

In executing the law we necessarily have incurred antagonism and some displeasure on the part of a few who thought only of their own personality, forgetting the duty they owe to others.

We are pleased to record the fact that the large majority of the pharmaceutical profession recognized the right character of our work, and have assisted us materially by their moral influence.

We recall with pleasure that during this last term there has been no cause to invoke the aid of the courts in the application of the law. A few cases have occurred where our authority has been temporarily defied, but these were soon settled by the offender either submitting to the decision of the Board or removing from its territory.

During this term, by the aid of this society, our law has been amended, perfecting it in many ways, especially by creating two grades of examination, enabling us to grant certificates to assistants as well as pharmacists, and thus making it possible for us to raise higher the standard of examination for those who propose opening stores, and allow those who wish only to remain as clerks a better chance to obtain their license. We find the amendments are working well.

During the last year the so-called State Pharmacy Law has been amended, and apparently affects our law, as it provides that certificates of qualification issued by one Board of Pharmacy in this State shall be recognized by all the other Boards.

The subject of interchange of certificates of the various Boards of Pharmacy in the United States has been a matter of interest and discussion from the organization of our Board. The Society is probably familiar with the facts of the case.

We have always taken the position of being willing to accept certificates of qualification issued by other Boards provided their conditions for examination and qualification were as high as ours, and that they were willing to reciprocate by receiving ours.

In the first years of this Board there were not many pharmacy laws in existence, and but little or no trouble was experienced; but as State after State passed laws which conflicted with ours, when a law was passed for a large portion of this State which enabled many incompetent persons to be licensed, and finally when the Board of Pharmacy in our neighbor city, New York, by a strained construing of their law, refused to recognize our licentiates, it became impossible for us to do anything else than to insist upon an examination by each applicant, except those provided for in the law, who wished to receive our certificate of registration.

This has been changed lately, so far as it relates to the Boards of this State, by this new amendment; though we should have preferred it to come in some other way, as it is in the line of our past efforts, and believe we are working according to its provisions.

The many laws now in force in the various States show great differences, but some of them are near enough in high qualification as to enable us to accept their licentiates, if our certificates are accepted by the Boards working under those laws.

If this interchange of certificates could be made general, it would be for the benefit of all; for there is no doubt many good clerks avoid certain localities, refusing to undergo an examination a second, third, or as many more times as they change places. Besides it would give a larger market for purchasers, and our stores would become more valuable, and need not be sacrificed so often when illness or death compels a sale.

The great argument urged against this is that it would tend to lower the standard of pharmacy; but this argument loses its strength when Boards of Pharmacy do their duty and conduct rigid examination, as our Board always has had the reputation of doing; for then there would be no fear of any but competent persons receiving the certificates.

Another argument that is used may be put aside also—that such a plan would injure the colleges. The tendency of the day is for most beginners in pharmacy to take a collegiate course; those who do not are either too old or too poor. Interchanging certificates would not prevent any from attending the colleges.

We have aided so far as we can the movement looking to the general recognition of Boards, and have sent representatives to the several conventions of Boards of Pharmacy held annually for the past three years.

It has progressed so far as to be recognized by the Amer. Ph. Assoc., and that body has appointed a committee, who will report in Detroit this year a place for its consummation.

Three years ago, in the report to their Society, the President of the Board drew attention to the want of knowledge possessed by many of the applicants, due, not to poor intellects, but from ignorance of the proper application of the method of systematizing their studies, and he suggested that the Society owed the duty to the beginner in our profession of devising a place of imparting information and thereby assist in making them better druggists.

He believed this could be done by establishing a school of pharmacy, to which the student would be invited to hear practical talks on the subjects they were expected to be proficient in, and which would enable them to pass successful examinations before the Board.

The Society adopted the suggestion, and for three winters several of its members, assisted by some outsiders, have voluntarily given practical talks or lectures on matters pertaining to the drug profession.

The Board has assisted at this work; each of its members has lectured before the class. The result has been most successful, and evidences of it can be seen in many subsequent examinations, not alone in the high standard reached by those who strove for the Fairlie medal, but also in that of others who had attended the lectures but were not eligible for the prize. We can say truthfully that, with but few exceptions, every one who attended those courses of lectures was much benefited thereby. Besides, we have furnished from those classes many students for the College of Pharmacy who otherwise might not have attended.

The moral and educational effect upon the members of our Society has also been very great, and that alone is sufficient to compensate for the trouble and expense the Society has taken in the matter.

The thanks of the Board are due, and are hereby tended to the Society for its prompt action on this suggestion, and we express the hope that the lectures will still be continued for years to come.

We have been called upon during the past three years to meet with committees from this and from the Medical and Pathological Societies in reference to the practice of some druggists adulterating their medicines and falsifying prescriptions, and have assisted so far as we were able in that direction.

During this last year the Board received a communication from a gentleman, containing a charge against a pharmacist of this city that he had substituted, on a prescription calling for oleate of morphine, a preparation which did not resemble that article at all, and which failed to give the benefit expected by the prescriber from its use; the patient, a child, was rapidly sinking under its use instead of being benefited by it.

The pharmacist was cited to appear for trial before the Board. Considerable time was spent upon the case, many meetings were held in which the complainant, the physician, a very reputable practitioner of this city, the defendant and several witnesses were present and were duly examined. Letters from Dr. Squibb were produced in which the preparation furnished was stated to have been analyzed and found to be a mere mixture of sulphate morphine and some oleaginous liquid, presumably oleic acid and some flour, the whole thing pronounced to be a fraud, if it had been furnished for oleate morphine.

The pharmacist plead not guilty so far as having any knowledge of the character of the contents of the bottle that the preparation had been taken from, but admitted it had been dispensed from his establishment as oleate morphine.

It was found he had been in the habit of buying unusual quantities of oleic acid, which he stated was sold to a neighboring barber for the purpose of cleansing brass. It was also found the prescription was dispensed by a clerk who was not registered. After due consideration, giving the pharmacist the benefit of all the doubts that appeared, the Board unanimously adjudged him guilty, passed a vote of censure for his misdeeds, fined him a sum of money, and withdrew his certificate of registration,

The druggist received the censure, paid the fine, and after a time was restored to registration, probably benefited by his punishment. We believe all true pharmacists will commend the action of the gentlemen and the physicians for the trouble they took to appear against the pharmacist for his illegal practices. If there are any more of such druggists in this city, which we sincerely hope there are not, who bring reproach upon our profession, we trust they will take warning from this case, for if any more such charges are proved before the Board their cases will be much more severely dealt with. The president suggests that in such cases hereafter the punishment be so severe as to prevent the guilty one from ever practicing pharmacy in this county again.

Recently the Board, taking notice of the many suicides caused by the proprietary article "Rough on Rats" and the unrestricted sale it seemed to have, issued a circular to the druggists calling attention to its having been found by analysis to be mainly arsenic, and as such should be sold as all poisons are sold under the restriction of record made of each sale and with it the name and the address of the purchaser and the name of a witness. In reply to it we have received assurances from nearly every druggist in this county that they would obey the law in this respect.

And now, gentlemen, as we bring this report to a close, I would tender my thanks to my associates on the Board for their many kindnesses to me while associated together. We have worked harmoniously and each has striven to do the best. Our secretary has labored hard, and has laid up stores of treasures for himself, but it is stored in that place where he expects to see them when bidding good-bye to all his friends in this world. Not wishing to anticipate his report I will not tell how much treasure he has accumulated for this Society, but will leave that pleasant duty to himself.

Our veteran, Mr. Nicot, who assisted the Board in its infancy is still aiding our counsels, and expects to be commended by his friends for his faithfulness to duty. He knows very well he has my commendation. To our doctors on the Board, I, on behalf of myself and associate druggists, offer congratulations for the splendid manner in which they have entered into the spirit of our work. Though the labors of the Board of Pharmacy are irksome to a degree little suspected by the uninitiated and in return give but little honor and no emolument, to the druggist it is a work that primarily is a duty, but it necessarily does not appeal with as much force to the average physician. In no case, however, have our doctors shirked a labor or shifted a responsibility that belonged to the position of members of the Board of Pharmacy. In this respect the Kings County Board of Pharmacy has always been especially fortunate, and it has largely been as much due to the devoted labors of the medical fraternity on the Board of Pharmacy from its first existence to the present day that the public, the druggists and the medical profession hold us in such high respect.

In this connection we congratulate the druggists in general and the members of the new Board in particular that the same medical gentlemen who have served for the last three years have been re-elected for another term.

The President of the Board though no longer in active connection with the drug trade has endeavored to perform all the duties of his position, and during his five years' connection with the Board has missed but two examinations in personal attendance, but owing to the system of written examinations, the work of the Board has not been kept back by reason of those absences, but during this last year has been done at a considerable sacrifice of his time and comfort. And now, gentlemen, the appointees of your Society return to your hands the gift they received three years ago, with many thanks for the honor and with the hope that they have performed the duties in a manner that will warrant your commendation.

Wm. P. De Forest,
President.

CORRESPONDENCE.

To the Editorial Committee :

At the meeting of the Pathological Society of Brooklyn, held October 25, I took occasion to relate the following case.

Some years ago a lady, four or five months after confinement, was taken with a swelling of one of the mammæ. The small amount of pain, the slight redness in the centre of the tumor, the retracted nipple, and my inability to bring the tumor to resolution or suppuration caused me to send the patient at her own request to a New York physician, who pronounced it a case of mastitis, and advised strapping, etc. After weeks of treatment without any result whatever except the steady growth of the tumor, I came to the conclusion that I had to deal with some form of cancer, and called the late Dr. Dodge, of Brooklyn, in consultation. He coincided with my view, and advised removal of the tumor. The decision being communicated to the patient, she desired Dr. Noeggerath, of New York City, to perform the operation. He consequently was called to see the case, and coincided with the diagnosis of Dr. Dodge and myself, but remarked at the same time, that he would make a microscopical examination of the tumor before operating. The appointed day for the operation having arrived, the patient was put under chloroform, and Dr. Noeggerath introduced a harpoon into the tumor and extracted a small piece, which he placed under the microscope. After examining it, he declared the tumor not to be cancer and declined to operate. Very little or no treatment was resorted to. After several weeks I thought I detected fluctuation in the centre of the tumor, and introduced an aspirating needle. Nothing but a small amount of serum was the result. The puncture made by the needle remained open, however, and a continuous oozing of serum took place for weeks and months. The tumor gradually became smaller, and in the course of four months had entirely disappeared.

During the discussion following my statement at the meeting of the Society, Dr. Seaman Bunker remarked that he did not believe that such a tumor ever existed, or words to that effect.

I do not wish to enter upon a controversy in regard to the ethical aspect of the remark made by Dr. Bunker, but I desire to call upon some of the pathologists or surgeons who know of similar tumors to state their views in regard to the same. Dr. Noeggerath, at the time of this occurrence, gave his theory of the tumor, but years have since gone by, and his views expressed at that time have escaped my memory.

After thinking over this case, I remember that after I aspirated and found serum in the interior of the tumor, Dr. Noeggerath and myself held another consultation, and injections of tincture of iodine into the tumor and potassium iodide internally were decided upon as the plan of treatment.

I further believe that the question whether the tumor was of a specific nature, and consequently a gummatose mastitis, was discussed at the time of its occurrence. It certainly may have been cystic, and perhaps it belonged to the group of tumors of the mammæ which Ziegler describes as cystoma, but at the same time I will admit the possibility of the needle, at the time I aspirated, entering a dilated milk duct, and that the serous fluid withdrawn and discharged afterwards was altered milk. If Dr. Noeggerath, at the present time a resident of Wisebaden, Germany, should see this communication, I hope I shall hear from him through your journal.

Respectfully yours, Arnold Stub, M.D.,
169 Dean Street.

P. S.—At the meeting of the Pathological Society only a few members were present, and with the remarks of Dr. Bunker the discussion ended.

MISCELLANEOUS.

BROOKLYN VITAL STATISTICS FOR SEPTEMBER, 1888.

By J. S. Young, Dep. Commissioner of Health.

Data of comparison:

Population, estimated on Oct. 1st, 1888	805,855
Tenement-houses (defined by law as containing three or more families)	94,000

In the month of September, 1888, there were 1,461 deaths, the rate of mortality being 22.39 in every 1,000 of the population.

The number of births reported was	1,186
The number of marriages reported was	391
The number of still-births reported was	92

The mortality by classes and by certain of the more important diseases was as follows:

Causes:

1. Zymotic	447
2. Constitutional	334
3. Local	533
4. Developmental	105
5. Violence	42
Measles	3
Croup	26
Diphtheria	41
Scarlet Fever	13
Typhoid Fever	24
Whooping Cough	32
Malarial Diseases	29
Diarrhœal Diseases (all ages)	236
" " (under 5 years)	203
Phthisis	168
Bronchitis	44
Pneumonia	76

All Respiratory Diseases	136
Bright's Diseases	34
Puerperal Diseases	9
Old Age	24
Suicide	7

Reported cases:

Diphtheria	121
Scarlet Fever	112
Measles	17
Typhoid Fever	—

During the month no cases of small-pox were reported. No deaths from small-pox occurred in the city or in the hospital.

Deaths by sex, color, and social condition were as follows:

Male	779	Female	682
White	1431	Colored	30
Native	1080	Foreign	381
Married	315	Single	959
Widows, Widowers, and not stated			167

Still-births (excluded from list of deaths) were as follows:

Males	52	Females	40
Total			92

Deaths in public institutions	89
Deaths in tenement houses	720
Inquest cases	98
Homicides	1
Suicides	7

Age Periods:

Deaths under 1 year	496
" " 5 years	243
Total deaths under 5 years	739
" " 5 to 20	111
" " 20 to 40	233
" " 40 to 60	196
" " 60 and upwards	182

Certain foreign and American cities show the following death-rate for the month of September:

Brooklyn	22.39	Vienna	21.04
New York	24.68	Paris	21.07
Philadelphia	19.60	London	16.46
Berlin	22.46	Glasgow	18.34
Dublin			19.52

A NEW DISPENSARY.

The Brooklyn Dispensary for the treatment of the diseases of the nose, throat, and lungs, including the incipient stages of consumption, has been duly incorporated under the laws of the State of New York, and is now open for the gratuitous treatment of the worthy poor of the City of Brooklyn, regardless of creed or nationality. The rooms are situated at No. 545 Fulton Street, entrance on Gold Street, and are accessible from all parts of the city. The dispensary will be open at 2 P. M., daily, except Sundays and legal holidays, and a competent corps of physicians will be in attendance. Any patient bearing a note from a physician will be gladly received.

The Board of Trustees extend to peysicians a cordial invitation to call in person and witness the workings of the institution.

The following gentlemen compose the Board of Trustees: Rev. Theo. L. Cuyler, D.D.; Coleman Benedict, Esq.; Herman Liebmann, Esq.; Rev. L. T. Chamberlain, D.D.; Gen. Jno. B. Woodward; Rev. Chas. H. Hall, D.D.; Eugene G. Blackford, Esq.; Hon. John A. Taylor; Prof. W. F. Hooper: William Schwartzwaelder, Esq.; C. C. Martin, Esq.; Sidney Allan Fox; Robt. B. Woodward, Esq.; W. J. Coombs, Esq.; John Norton, Esq.; Alex. Cameron, Esq.; Abram Abraham, Esq.; Hon. Darwin R. James; D. W. McWilliams, Esq.; David H. Houghtaling, Esq.; George A. Evans, Esq.

Eugene G. Blackford, Esq., is the President of the Board.

MERCURIC CHANGED TO MERCUROUS CHLORIDE.

Dr. Samuel Kennedy communicates to the *Pharmaceutic Record* the results of his experiments with bichloride of mercury in solution.

He found by repeated testing that compound syrup of sarsaparilla reduces mercuric to mercurous chloride. If a little common salt is added to the solution, the buff-colored precipitate of calomel does not take place for at least two or three weeks. He advises to add to prescriptions in which corrosive sublimate enters as an ingredient, an amount of common salt equal to the weight of the corrosive sublimate.

CONSTITUTION AND BY-LAWS OF THE BROOKLYN PATHOLOGICAL SOCIETY.

ARTICLE I.

Name and Members.—This organization shall be known as the Brooklyn Pathological Society. It shall consist of resident, non-resident, and honorary member. Any member not in arrears with the society, who may permanently remove from the County of Kings, shall be known as a non-resident member. Such member shall not be required to contribute to the funds of the society, neither shall he vote, be eligible to any office or appointment, nor receive notices or publications from or through the society; but in all other respects he shall enjoy every right and privilege of a resident member.

A non-resident member, on returning to the county, shall become an active member on payment of the dues for the current year.

ARTICLE II.

Object.—Its object shall be the improvement of its members in Pathology and in Diagnosis, as founded upon pathology; by the exhibition of morbid specimens and collateral discussions.

ARTICLE III.

Officers.—Its officers shall be a President, Vice-President, Secretary, and Treasurer, to be elected by ballot at the annual meeting. These, together with the members of the two permanent committees, shall constitute a council, to whom matters of business connected with the society shall be referred.

ARTICLE IV.

President.—The president shall preside at all meetings, and shall have a casting vote, shall preserve order, and decide all questions of order subject to an appeal to the society. He shall appoint all committees authorized by the society, unless otherwise specially provided.

ARTICLE V.

Vice-President.—The Vice-President shall discharge the duties of the President in the event of his absence or disability.

ARTICLE VI.

Secretary.—The Secretary shall reserve minutes of all the proceedings, and shall receive all histories, reports of committees, and illustrations of specimens, and shall edit the proceedings of the society. He shall notify members of their election, and the time and place of each meeting. He shall keep a list of the members of the society.

ARTICLE VII.

Treasurer.—The Treasurer shall take in charge all funds, and have power to employ a collector at the expense of the society; keep an account of all receipts and disbursements, and pay all just demands after they have been approved by the President. He shall make a statement of receipts and disbursements of the preceding year at each annual meeting, and shall report at the time the names of all members in arrears of dues and the respective amounts.

ARTICLE VIII.

Committees.—1. The President shall appoint, each year, three of the resident members of the society as a Committee on Microscopy, whose duty it shall be to examine all specimens referred to them, and to make a report thereon. The chairman of this committee shall act as Curator and Librarian.

2. A Standing Committee of three shall be appointed, whose duty shall be to report on the progress of pathology as gathered from the literature of the day; this committee to report quarterly.

ARTICLE IX.

The requisite for admission shall consist in a proposition for membership by a member of the society, an election by a two-thirds vote of members present at any subsequent meeting, a subscription to these by-laws, payment of the initiation fee, and the presentation of a morbid specimen with a written history of the same, or, in lieu thereof, an original paper upon any subject included under the heads "General and Special Pathology." The candidate must be a physician in good standing.

ARTICLE X.

Initiation Fees and Dues.—The initiation fee shall be two dollars ($2), and shall include the dues for the current year. The dues of the current year shall be determined at the annual meeting, and shall be payable in advance.

Members who shall not have paid the annual dues for two years in succession, after having been twice in each year called upon to do so, are declared to be "in arrears with the Treasurer," and their names shall appear in the list as suspended for unpaid dues.

Members "in arrears with the Treasurer" shall neither be eligible to office nor entitled to vote at any annual meeting; neither shall they be entitled to the privilege of being notified of the meetings, nor of receiving publications from or through the society.

Any member who shall continue "in arrears with the Treasurer" for one year, after having twice received due notice of the existence of this by-law and of the amount due from him, shall be no longer considered a member, and shall not be reinstated except after the payment of all arrears, unless the society shall, by special vote of two-thirds of those present at a stated meeting, otherwise determine.

ARTICLE XI.

Meetings.—Stated meetings shall be held on the second and fourth Thursdays of January, February, March, April, May, October, November, and December; on the second Thursday of June and the fourth Thursday of September. There shall be no stated meetings during July and August. The time of meeting shall be 8.30 P.M., and adjoinment shall follow by limitation at 10.30 P.M. Special meetings shall be called by the President, on a requisition signed by five members.

The annual meeting shall be on the second Thursday evening of January.

ARTICLE XII.

Order of Business.—The order of business shall be as follows:

I.—Stated meeting—

1. Call to order.
2. Minutes of preceding scientific meeting.
3. Report of committees.
4. Presentation of specimens and discussion.
5. Executive session.
    - (*a*). Minutes of previous executive session.
    - (*b*). Reports of committee.
    - (*c*). Proposition for membership.
    - (*d*). Election of members.
    - (*e*). Miscellaneous business.
6. Adjournment.

II.—Annual meeting—

1. Minutes of previous annual meeting.
2. Report of Treasurer.
3. Report of Secretary.
4. Election of officers.

5. Election of Committee of Microscopy.
6. Miscellaneous business.

All elections shall be by ballot, and by a majority of the members present.

All questions of order shall be determined by parliamentary usage, as defined in Roberts' "Rules of Order."

ARTICLE XIII.

Quorum.—Five members shall constitute a quorum.

ARTICLE XIV.

Amendments.—These by-laws may be amended only after one month's notice of the same, in writing, shall have been submitted, through the Secretary, to the society; and a three-fourths vote shall be necessary to adoption. Any by-laws may be suspended at a stated meeting by a two-thirds vote.

BOOKS AND PAMPHLETS RECEIVED.

All books and pamphlets sent to THE JOURNAL *are deposited in the Library of the Medical Society of the County of Kings.*

Text Book of Human Physiology. By Austin Flint, M.D., LL.D. 4th Ed.' entirely rewritten, 8vo c. N. Y., D. Appleton & Co., 1888.

Index Catalogue of the Library Catalogue of the Surgeon-General's Office. Vol. IX. Medicine (popular) Nywelt. Washington, D. C., Government printing-office, 1888, pp. 13–1054.

Transactions of the Academy of Medicine in Ireland. Edited by Wm. Thompson, M.C., F.R.C.S., General Secretary. Vol. V., 8vo c. Fannin & Co., Dublin, 1887. A very handsome volume of 367 pages, with a more than ordinarily interesting table of contents, divided into medical, surgical, obstetrical and pathological sections, and sub-sections of State medicine, and anatomy and physiology. Many of the papers are handsomely illustrated.

Transactions of the Medical Association of the State of Missouri at its thirty-first annual session, held at Kansas City, Mo., April 17, 1888. 8vo, paper. St. Louis, 1888. A volume of 462 pages, containing, besides the ordinary minutes, lists of members, etc. A very valuable collection of papers on various medical and surgical subjects.

A Case of Icterus Infantum from Congenital Deficiency of the Ductus Communis Choledochus. By John Blake White, M.D. 8vo pamphlet, reprint from *Am. Jour. of Obstetrics and Diseases of Women and Children.*

Laparotomy for Acute Intestinal Obstruction, with abstract of 69 cases, including a successful one by the writer. By Frank Rockwell, M.D., of Brooklyn. 8vo pamphlet, reprint from *Annals of Surgery.*

The Transportation of the Disabled, with special reference to Conveyance by Human Bearers. By James E. Pilcher, Ph.D., Assistant Surgeon, U. S. A. 8vo pamphlet, illustrated. N. Y., 1888. Reprint from *Journal Military Service Institution.*

McGill University—Annual Calendar Faculty of Medicine, 56th session, 1888-89. Montreal, 1888.

Professional Patients. By W. Stone How, D.D.S. Philadelphia, Pa. Read before the Mississippi Valley Dental Association at Cincinnati, Ohio, March 7, 1888.

Handbook of Historical and Geographical Phthisiology, with special reference to the distribution of consumption in the U. S. Compiled and arranged by George A. Evans, M.D. 12vo c., pp. 295. D. Appleton & Co., N. Y.

Physicians' Interpreter in Four Languages, specially arranged for diagnosis. By M. von V. F. A. Davis publisher, Philadelphia, Pa., 1888. This little book in flexible covers, meant for the physician's pocket, gives in English, French, German and Italian 1,000 questions, etc., which a physician might wish to use with a patient whose language he did not understand.

Hot Water in the Management of Eye Diseases. By Leartus Connor, A.M., M.D. 8vo pamphlet. Detroit, 1888.

Intubation of the Larynx. By F. E. Waxham, M.D. 12vo c. Published by Charles Truax, Chicago, 1888.

Comparative Studies of Mammalian Blood, with special reference to the Microscopical Diagnosis of Blood Stains in Criminal Cases. By Henry F. Formad, B.M., M.D., with 16 illustrations from photo-micrographs and drawings. 8vo c. Philadelphia, 1888. C. L. Hummel & Co., publishers. Dr. Formad is a well-known pathologist connected with the University of Pennsylvania, and pathologist to the Blockley and University Hospital, and has given us an exceedingly valuable contribution to this department of medico-legal science.

THE

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ORIGINAL ARTICLES.

SANITARY REFORM.

Anniversary Oration, Kings County Medical Society, 1860.

BY A. N. BELL, A.M., M.D.

I should prove myself unworthy of this honor conferred upon me by the Kings County Medical Society if I were not first to acknowledge the lively appreciation I entertain of the kindly feelings manifested in my behalf. In whatever degree I may fall short of meeting your expectations, the subject I have chosen will, I trust, engage your attention.

The subject of my theme is Sanitary Reform. This I propose to consider, first, in its general aspect; and, second, in its local application.

SANITARY REFORM.

1. General aspect of the subject.
2. Its local application.
   - *a.* What have we to reform?
   - *b.* How far has reform hitherto progressed?
   - *c.* What yet remains for the accomplishment of a complete reform?

To advance our knowledge of the most efficient means of arresting the march of disease, alleviating suffering, and promoting the duration of human life, is not alone the province of the medical profession. This is a work in which all are concerned; and while it is the duty of physicians to point out the conditions in conflict with health and life, the innate sense of self-preservation dictates to every thinking mind the obligation to aid in the work.

The preservation of human life is the strongest test by which to measure the efficacy of all institutions devoted to the accomplishment of temporal aid to mankind. Freedom, security of property and general happiness and well being, may be the immediate object of such institutions, but the duration of life will be the most expressive testimony to the success with which they accomplish their objects. If we examine two communities and find that in the one human life is one-fifth longer than in the other, we may safely conclude that the long-lived people have at least a fifth more of all the elements of happiness and well being which it is the object of humane institutions to procure. It may be that in individual instances we shall find a short life so full of happiness and success, that in itself it might be infinitely preferable to a long existence dragged out through misery and misfortune. But human beings are never wholly isolated; more or less the influence of each one ramifies through the rest of the species. And though individual after individual might be named, running up to countless numbers whose happiness it was to die young—before the griefs and sorrows that have awaited the later sojourners in the vale of tears—still it militates not against the truth, that shortness of life among individuals is a heavy calamity to the community at large. You may indeed take your single instances and show that the individuals were happy in their short lives, that death came to them so peaceably that they did not suffer the pains of long sickness and uncertainty; but who can tell what suffering the early and sudden death may have caused to others—to those who go to make up the sum of the community whose happiness is at stake? Here we have an only child, the promise of his family, the tie that binds his parents to the world and sweetens to them all the bitter elements in the cup of life; there is the accomplished wife, the beloved object of many affections, dearer to all around her than anything which the world could replace. And here, too, is the father of a young offspring, himself in the prime of life, with talents, virtue, energy, good esteem and every quality that is required to erect an edifice of fame and fortune to his dependent family. To weigh against the scale of happiness unmixed, which the departed has enjoyed, how overwhelming is the amount of wretchedness piled up on the other side! And yet the calamities of short life are not alone limited to relatives and personal friends.

The whole history of lamentation and woe from the beginning of the world—the funeral ceremonies in which the living symbolize the intensity of their grief, the monuments they rear to tell the world for centuries to come of the calamity they have suffered from the stroke of death, are enduring evidences that it is not so much in the removal of one sentient and living being off the earth, as in the change—the calamitous change to the survivors—attests that death is truly the king of terrors.

When any evil agency which could be abolished is left to work on the human race at large, it is difficult to predict into how many channels its deleterious current may run. When men are cut off in the prime of life and their widows and children are left to be provided for, it might be thought that the expense and the pauperism, with all its own natural growth of evils, represented the full extent of the calamity suffered by society. But this is far from being the true state of the case. The causes of early death give rise to ungovernable youths by the removal of parental restraint. Boys set free to follow the dictates of unbridled wills, confident in their ignorance, plunge into vicious habits and become the ruling spirits of turbulence. Indeed, burdens are created and costs entailed upon the industrious survivors of every community in direct ratio with a high mortality. The pecuniary costs of pernicious influences may be measured by the charges attendant on the duration of life and the reduction of the period of working ability; and the cost will include much of the attendant vice and crime, as well as the destitution which comes within the province of pauper support.

Savage nations generally practice the belief that there is an advantage in removing that portion of every population which is unable to provide self subsistence. Hence they openly put to death infants, and those who are borne down with the infirmities of age. The same error prevails among a large class in civilized communities, and those who entertain this error argue for a compensating advantage in the removal of a worthless portion of surplus population. But this is an exceedingly superficial view, and only worthy of those who most openly act upon it. It is *not* the surplus, but the valuable portion of life thus thrown away. To whatever extent the duration of life is diminished by noxious agencies, so much productive power is lost, and every community is poor and powerless in the inverse ratio to the average duration of life. Every death under the age of fifteen years carries with it a positive loss, because previous to this age sustenance involves a cost —a direct outlay—whilst if life is preserved, a productive member of society is added and remuneration rendered. And if the probabilities of life are so low as to make the average adult age young, the proportion of widowhood and orphanage is necessarily increased, and the productive members of society proportionately burdened. If a husband dies in the early part of his married life, he leaves as burdens on the world a widow or children, for whom in all probability, if he had lived, he would have labored. Indeed premature deaths cut right into the centre of commercial prosperity. Had Fulton died in his infancy, or Morse before his great invention, the world might have long remained ignorant of the loss sustained by a premature death.

Early deaths presuppose sickly, feeble lives, at all times incapable of vigorous exertion and frequently interrupted by periods of debility. The man whose life has not exceeded forty years has had many periods of inability and sickness before its close, and by a general rule, short-lived persons have more years of inability and uselessness than the long-lived, for among healthy men we observe individuals undertaking great labors in comparatively old age. Our living statesmen, soldiers and judges are examples.

Important as the preservation of human life is to the progress of the world, it is, comparatively speaking, only in recent times that the subject has received specific attention. Our knowledge of the comparative longevity and mortality of the various classes of society among the ancients seemed to depend upon conjecture alone. But it appears to have been the prevalent opinion, that poverty was favorable to long life; that it exempted from many diseases which follow in the train of luxury and wealth; and that the affluent individual, if desirous of attaining to old age, would find it his interest to imitate the habits of the peasant. The contrary of these conclusions has been brought to light during the present century, by a rich variety of facts; and the present conclusion is that, in general terms, poverty, cold and moisture are the greatest enemies to the enjoyment of health and long life; and that competence, or an easy condition, is the strongest safeguard of the body. That wherever there is the greatest portion of misery, there will be the largest mortality.

It is a common impression that a great mortality is an unavoidable necessity to city population. This is far from being correct. If proper attention were paid to the sanitary condition of cities the average duration of life would increase in like ratio with their population.

The effect of civilization in this particular is demonstrated by the health statistics of Geneva, where they have been observed with greater accuracy and for a longer period than in any other city in the world. Health registers were established in Geneva in 1549, and they are regarded as preappointed evidences of civil rights, and are consequently kept with great care. The registration includes the name of the disease which has caused death, entered by a district physician who is charged by the State with the inspection of every one who dies within his district. A table is made up from certificates, setting forth the nature of the disease, specifications of the symptoms, and observations required to be made by the private physician who may have had the care of the deceased. Under this regime the increase of population has been followed by a proportionate increase in the duration of life.

In the year 1589, the population was 13,000; and the probabilities of life were to every individual born eight years seven months and twenty-six days. In the seventeenth century the population increased to 17,000, and the probabilities of life to thirteen years three months and sixteen days, and so on continuously. From 1814 to 1833, the population being from 24,158 to 27,117, the probabilities of life for every individual born were forty-five years and twenty nine days; and at the present time the probabilities of life in Geneva are near fifty years. This result is attributed to the improved condition of all classes; to the science of public health being better understood and better applied; to larger, better and cleaner dwellings, more abundant and more wholesome food; and, in fine, to a better regulated public and private health.

As a special instance of the effects of regimen in the preservation of life, M. Mallet, from whom these statistics are taken, mentions that in an establishment for the care of female orphans taken from the poorest classes out of eighty-six reared in twenty-four years, one only had died. These orphans were taken from the poor.

Again, it is frequently remarked that the luxuries of the rich and the miseries of the poor equalize the scale of happiness by being alike deleterious to health. But if we consider how very small must be the proportion of deaths from actual poverty, as compared with the number from other and removable causes, and apply the same rule to country population, where the proportion of poor is greater yet healthier, we find in this circumstance an abundance of other causes than poverty which occasion the excess of mortalities in cities. The worst effects of poverty are that it leads to filth and neglect, and this constitutes an insalubrity which affects the whole community. It requires but little reflection and no argument to perceive that *want* or *privation* not only shortens the natural term of life, but that it has a tendency to produce diseases which, when once formed, gradually communicate themselves to those who are placed in more fortunate circumstances. The greater part of epidemic diseases the world over originate in the abodes of poverty and filth. A season of scarcity or the absence of accustomed employment conspires to generate diseases which would not otherwise exist; and if there were no other arguments to be used, in order to attract the attention of society, expediency and self-preservation must always render it abundantly politic on the part of every compact community to anticipate and remedy the evil before its effects are experienced. Wherever misery is manifest there always exists at man's disposal means of mitigating or removing it. To find out and apply these means is advancement in civilization.

The miserable, degraded, and sickly portion of every community is weak in proportion as the highly cultivated and healthy is strong. And to assist the weak in applying such measures as will protect mankind at large from the injuries which each in a narrow-minded selfishness would inflict on his neighbor, is always both rational and right.

How much is involved in the great question which I have now endeavored to present! All human interests are involved in disease and death. Legislative policy, political economy, all the amenities of civilization, go for nothing where health and life are at stake. A great point is gained when people become sensible that a degree of responsibility rests upon them—that they have a character to lose. And to this point, unless experience be fallacious, we can only arrive by means of the combined ameliorating influences of sanitation and education. "I consider a human soul," says Addison, "without education like marble in the quarry, which shows none of its inherent beauties till the skill of the polisher fetches out the colors, makes the surface shine, and discovers every ornament, cloud, spot, and vein that runs through the body of it." But education without sanitation must be *ex necessitate rei*, inefficient, and unsatisfactory; to educate minds familiar with filth and squalor, is an incongruous absurdity.

This age is distinguished above all others as the age of progress, and our country claims to be second to none in the most prominent features of civilization. We are indeed occupied from one end of the country to the other, as busy as bees, grinding away at the surface of the rising generation: searching for ornaments, exhibiting the clouds, and fixing the spots and veins that run through the body of that living marble, from which it is the joy of the artist to clear away superfluous matter and to remove rubbish, in order that the great, the wise, and the good may be simply disinterred and brought to light. Our universities, free academies, fine churches, splendid institutes, and richly endowed libraries, all attest the estimate we place upon education. And our studios, academies of design, workshops, factories, and patent locomotives, evince an indefatigable industry on the part of the people. In all the arts of civilization we are striving for the supremacy of the world. The machinery at command is immense, the disposition to turn out a creditable article undoubted, and the expense incurred beyond estimate. At the apex of this modern pyramid erected in honor of human progress stands the great manufacturer. He distributes benefits on the largest scale, and numberless partakers now wear soft clothing at a price which, compared with the days of the distaff and the weaver's beam, would scarce have supplied a turban. Every industrious man may now have change of garments at short intervals. And we have our merchant princes who, despite the obstacles of war, supply us from afar with luxuries, which have ceased to be luxuries because no longer limited to the wealthy. Our houses, too, are constructed in the most commodious manner. If, in our daily rounds, we happen to visit a house built when Brooklyn was a village—only a little more than twenty years ago—the rooms and passage ways are discovered to be small; and, if among the furniture there remains an old heirloom chair, it is placed far back in the corner, for it may be broken by being sat upon. Larger houses, larger rooms, larger chairs, and larger ideas, encompass the old homestead on every side; and if it is permitted to stand, it is looked upon as a relic of the past. A step from it, and we are in the city railroad car, which intersects hard by with the track of the locomotive. People travel now, not only because their business urges them onward, but because the facilities of locomotion are too tempting to be resisted. Nobody shuts himself up nowadays in indulged prejudice and exclusive ignorance at home. And, as we cannot move our bodies and leave our minds behind us, we must needs whirl along with the multitude.

Whatever can contribute to pleasure, comfort, luxury, convenience, is infinitely multiplied and realized; we see it in the cheapness of travel, the penny postage-stamp, the swift express, the instantaneous portrait, the lightning messenger—all telling of an energy and progress peculiar to the age. These are some of the advantages of human progress which obviate many diseases to which our ancestors were liable.

In proportion as we stretch our limbs, we expand our thoughts. And as the significance of the abode, so the value of personal prejudice diminishes. It cannot be otherwise, for intellect is emancipated by free intercourse and selfishness chastened.

Now, if it be true that the whole country *is* on the march, and that marching is favorable to human elevation, it is reasonable to hope that the schoolmaster is not only "abroad," but active wheresoever the learned are gathered together. Where disciples are restless, philosophers must needs be peripatetic.

My brethren of the Kings County Medical Society, to what advantage are we turning this rushing and scampering in all the avenues of human progress? Are we making the most of the finest opportunity the world ever saw for guiding awakened thought and instructing the eager and susceptible mind?

We are here as the humble representatives of a profession which arose in the palmiest days of Grecian and Roman learning. It passed through the darkness of the middle ages, and, when learning again revived, it burst forth in copious light as the handmaid of Newton's law. And without depreciating the cultivation of other sciences, or decrying other professional occupations, it may be with truth asserted that there is no study so calculated to enlarge the capacities, invigorate the intellect, discipline the understanding, chasten the fancy, and improve the heart, as that of the science of medicine, if cultivated in a cautious, truth-loving, honest, and philosophic spirit. Let this then be as one of our many unions throughout the year; let it have the same ostensible object of all our society discussions—the discovery of truth: truth, the perpetual bond of union, the spirit of our fraternity, the common battle-ground upon which we unfurl our banner and take our stand.

However disagreeable the truths, however repugnant to our pride or obnoxious to our senses, let us approach the removal of the causes of disease in our body-politic precisely as we would the investigation of the remedies used for its removal in any case under treatment; adopting no specious generalities, being seduced by no general considerations, let us go to the root of the matter, and, if it subjects us to severe criticism, let it be our endeavor to make amends by greater faithfulness in the future. We, too, have a character at stake.

Were it necessary, we might go back to ages long anterior to our own historic period and show that certain leading principles promulgated by physicians have been recognized and acted on by the wise as essential to health and vigor of body. But such a survey is incompatible with our present scope. We need not insist on the doctrines of Hippocrates and Galen, as sound now as they were two thousand years ago. The philosopher Erasmus, one of the most learned men of the sixteenth century, in a letter addressed to the physician of Cardinal Woolsey, reminded the English of Galen's opinion concerning the want of ventilation in their houses, and that a city was once delivered of a plague of long continuance by altering and cleansing their buildings. Had they regarded his good advice, the great plague of London which followed the persistence in filth might have been prevented. A century later than Erasmus, the philosophy of Bacon inculcated "a wisdom beyond the rules of physic," a man's own observation: "What he finds good of and what he finds hurt of, is the best physic to promote health. Examine thy customs of diet, sleep, exercise, apparel, and the like, and try in anything, thou shalt judge hurtful to discontinue it." Views like these have become the commonplace logic of the multitude; and when the distinguished political economist, Say, declared that nation to be most civilized in which the comforts of life were most widely diffused among the people, it was regarded as the highest compliment that he could pay our country. True indeed is the sentiment, but false, O how false to us! We have an element of weakness, of degeneracy—of perdition even—which has no parallel among civilized nations: institutions so free that every individual enjoys the right to poison his neighbor. Free schools, open to the multitude, and scholarships in richly endowed institutes and learned universities—"advantages adapted to the meanest capacities"—so free that a pupil familiar with pollution has the legal right to inoculate the establishment with small-pox. Indigence, misery, and appalling mortality, educated into opulence and luxury without regard to health! Fine churches and fine almshouses, magnificent schools and high prison walls, keeping pace with each other in a race for the victory! These are the extremes which meet, ere they reach the grave, to equalize the sum of life in a country too free for sanitary laws!

These are the stones which need brushing up ere they become monuments of good intentions and self-conceit. Exceptional specimens no doubt there are, but the bulk of them are far from representing either the money, the time, or the labor spent. This must necssarily be so in an attempted education without sanitation. A dozen years, at least, of free education is offered to every youth in the land, to every child of six years old and upward. I say, tell me what ought not to be surmounted after twelve years' devotion to education—nearly a fifth part of life, and that part the freshest, the keenest, the most susceptible, and the least troubled! Tell a man at twenty-eight that you will provide for his temporal necessities until his fortieth year, that you will furnish him moreover with the means of acquiring specific knowledge throughout that lengthened period, what a monument of erudition you would have at the end of the double apprenticeship. But what species of monuments are those living stones already referred to, which, after all their polishing in our institutions of learning, enter the learned professions and the world with which they are destined to contend!

Are our students fit to grapple with their fellow men? Is the fruit of knowledge ripe within them? Is the intellectual and moral result of the past ready to serve as capital for creating a new harvest for the future?

If we have educational advantages "adapted to the meanest capacities," let us see to it that they are also adapted to the noblest.

What have we to reform?

At the foot of State Street is a block of buildings, averaging eight families to a house, of about four persons in each family. The cellars of these houses are over three feet deep in mud and filth. The doors to these cellars are mostly nailed up, for the immediate safety of children occupying the basement floors. Yet the floor-boards are rotten and in danger of breaking through, while they are perforated by numerous holes, rendering them the perpetual receptacles of the foul emanations from beneath them. Passing through the lower halls of these houses, which may be appropriately designated vomitories, there is a block of rear buildings out of public view, built in what should be the yard. I will not attempt a description of these, the filth with which they are loaded and by which they are surrounded, nor of the class of people who occupy them—they are indescribable, all except the swine which here gloat in their element. Another block, on Furman Street near State, is quite as bad.

Kelsey's Alley, extending from Columbia Street to the river, between Atlantic and Pacific Streets; Franklin Place, extending from Pearl to Jay Street; a block on Pearl, extending from Plymouth to Water Streets; a row on Main Street, another on James Street; Howard Place, running out of Main Street,—are all places of the same kind. These are in the heart of the city, and there are many more of the same sort in various parts of it; so that, if it were possible to arrange them together, we should have an area as large as Washington Park, and a pool more appalling than that in the centre of Cairo—and even more dangerous, because scattered, and wreaking exhalation on every part of the city.

Many of these buildings are owned by residents of New York, who employ agents here, or rent them out to persons who sublet them. The same owners have acres of the same kind in their own city.

In the midst of these abodes, too, are the criminals. The policeman who accompanied me in some of my visits recognized the faces of many of those whose portraits adorn the rogues' gallery, such persons generally occupying the best apartments. In the lodging houses the floors are covered with filthy beds of straw, each of which receives as many as can be crowded into it. In one on James Street, a back basement room of less than one thousand cubic feet of space, and with no windows or other means of ventilation, offers accommodation to twelve lodgers. Now, as each adult individual in the course of a night vitiates about three hundred cubic feet of air, rendering it quite unfit for respiration, if we suppose twelve pairs of lungs engaged in this process, we shall find thirty-six hundred cubic feet of air rendered noxious during the period of sleep, or more than three times as much as the cubic contents of the room in question, which is the same thing as to say that twelve individuals are furnished with a supply of air sufficient for the wants of only three—presenting a picture in miniature of the Black Hole in Calcutta. And such they are too, in effect, for in one of the places named two dead bodies have been taken out during the winter just ended without any knowledge of preceding illness. And who can depict the horrors of the living in abodes like these? Young children, here left long days while their mothers are in search of food, breathing the subtle, sickly vapors, soothed by the opiate mixtures of quacks and other deadly distillations; and when assailed by mortal diseases, their bodies convulsed, their brains bewildered, left to die without medical aid, which, like hope, should come to all—a physician not being called in at all, or only summoned to witness the death and sanction the burial. Shall this shameful condition of things continue?

I hasten from this loathesome subject. One tale of sorrow, and I will have done with it. There lived in a back garret-loft of one of the small tenement houses in Franklin Place, a poor mother and daughter, a girl aged eighteen. By diligence in making cap-linings for a hatter on Main Street, they were able to keep together, and pay $1.50 a month for rent. Two years ago last June, the daughter had a spell of sickness, and became paralyzed on the right side of her body, her arm in a wilted state. Now dearer than ever before to her mother, the latter redoubled her diligence to keep herself and child out of the almshouse. From some cause, during the cold weather in December last, the shopkeeper was unable to supply the accustomed work, and one day's loss of work was one day's loss of food. As a final resort, she sought it from door to door; but ere she had gone far from home, in the spasmodic execution of a new idea, she was taken up by a policeman for begging, carried before a magistrate, and committed to the penitentiary for four months. Her time is not yet out for begging bread, and she was hurried off without taking leave of her child. The hatter heard of it, and exerted himself to rescue the poor woman from prison, but his representations availed nothing. His charity does, however: for, in the same room, the poor paralytic remains alone, awaiting her mother's return, and she is supplied with cap-lining work, which, with great effort, she is trying to sew; she earns a few shillings a week, and the hatter pays her rent.

What have we done for the removal of such evils as these? How far has reform hitherto progressed? Water and sewerage have just been introduced, but these go not among the class of people who most need them. Besides, whatever may be the effects, sanitation was no part of the object for which water was introduced, and had sanitation been pressed as an argument, it would probably have hurt the measure. We have them, however, and the mortality of our city last year was over two per cent. greater than during the year preceding. In not one of the tenement or lodging houses in the places mentioned has water been introduced, while it is impossible to conceive of a condition more in need of it. We have dispensaries, but they receive no public attention other than the appropriation of $1,000 a year; whatever good they do is by the charitable medical officers in charge of them, who are frequently made the instruments of evil, in default of a systematic arrangement which can only be provided by law. One thing has been done by the enterprise of a private individual—physicians have purer medicines. Dr. Squibb, during his short residence here, has done more for the health of the inhabitants of Brooklyn, by the manufacture of pure medicines, than the public authorities have ever done. Indeed, the appropriation made by our common council for the purpose of public health, is a burlesque and a shame. Last year they appropriated the sum of $500! They overran this amount, however, by nearly $300 more, making in all $800. This year they have been more magnanimous, have made an appropriation of the amount to be raised for the purposes of public health, of no less a sum than $1,000 for the promotion of public health in a city of more than 250,000 inhabitants! Everybody knows that during this season of accumulation of the causes of disease we have no board of health, that body never meeting save during a short period of time in the summer to act on the effects of causes which are only now remediable. The only thing pertaining to public health which has the aspect of provision, is that for accidents, etc., in the City Hospital, pursuant to the city charter.

Literally, then, in answer to the question, How far has reform hitherto progressed? we are constrained to reply, it has made *no* progress—*nothing* has been done under any system of public laws for the protection of the health and lives of the inhabitants of the city, and the proof of this consists in the circumstance of an increased mortality.

What remains for the accomplisment of a total reform? When Erasmus volunteered his advice to the City of London there was no provision whatever for cleaning the streets, and many of the dwellings in the poorest parts of the city were in a condition similar to that which pertains to parts of Brooklyn. Two centuries have carried the world high up in the scale of civilization. During the interval what has science not accomplished for the well-being of man? What have the spread of intelligence, the labor of missionaries, the intercommunication of thought, the better understanding of nations and classes, not wrought for the happiness of mankind? To dwell upon human progress for the last two hundred years is to behold at a glance the spoils of as noble a victory as ever rewarded patient endurance, unflinching energy and heroic devotion. All along during the progress examples might be given of the advantages of treating health on principle. But it was reserved for the present generation to accumulate the unconnected experiences of those who had preceded them and bring them to bear with comprehensive force on the whole question of sanitary reform.

The carrying out of the new poor law in England twenty-two years ago, may be regarded as the starting-point of the movement. Medical men of known competency were authorized to collect evidence on certain social conditions said to favor pauperism, and the evidence when logically collated presented an amount of proof altogether irresistable; and then was the doctrine there first broached, that disease was not inevitable, that its physical causes were removable. The year following, further inquiry was instituted, and commissioners were appointed by the government to inquire as to the comparative health and condition of trades, the inmates of dwellings, factories, tenements, and lodging houses; in relation to rents, wages, and expenditures; the means of cleanliness and decency; whether the comforts of home tended to withdraw the laborer from the beershop, and from the habits of improvidence to which it leads; whether residents in separate and improved tenements are superior in condition as compared with the laborers who hold merely lodgings, or who reside with other families in the same house; whether there was a proper supply of water for the purposes of cleanliness, and whether the surrounding lands were drained properly; whether there was sufficient ventilation and due regard to warmth; whether there were proper receptacles for garbage, etc., in connection with the houses; whether tenement houses were overcrowded, and several families or persons occupying the space which would only properly suffice for a smaller number; whether there were inferior lodging houses crowded by mendicants and vagrants; whether there was a gross want of cleanliness in the persons or habitations of certain classes; whether there was a habit of keeping swine, etc., in dwelling houses or close to the windows and doors. These are a few only of the queries addressed to physicians and others who assisted in the preliminary investigations which began in England twenty-two years ago, and of which our municipal authorities seem not yet to have heard. In the enjoyment of political successes, surrounded by pleasant sights, flowery smells, healthy faces, and sycophant partisans, they have enough to do without inquiring into the misery that stalks through unburried corruption down the alleys of the next street. That excessive crime may be deduced from the same causes as excessive mortality, has not yet found an echo in our land, though proven and acted upon in England twenty years ago. Brooklyn Heights, overlooking the finest bay in the world, and Brooklyn hills, affording a periscopic view of air and water unlimited—that there are people in Brooklyn, notwithstanding this, smothering for the want of air and rotting for the want of water, is indeed astounding.

Our municipality may suggest that there is a remedy in the abundance. Yes; and it is recorded of a French princess, who thought that, though bread was wanting, pie-crust must still be abundant, and might prove a wholesome substitute. And such knowledge fairly illustrates the practice of our civil authorities in their efforts for the preservation of public health. Men, perhaps, all good in their way, are good *politicians*, but the industry required of them in their particular sphere unfits them, in proportion to their success, for the fulfillment of what should be their most sacred obligation—the preservation of life. Being free to pursue their own business, to follow the dictates of their own interest, without regard to the health and lives of the people, they possess a power of evil, barbarous to tolerate and despotic to claim.

When a factory is blown up or a sloop sunk there is an immediate cry for the punishment of some individual whose selfishness or carelessness has led to the calamity, in order that all men may be warned against the dereliction of duty in time to come. Yet how few remember that besides these occasional droppings, which so startle the ear, there is a great stream of death and misery holding its onward course, as to which they have never asked the question whether or not the bulk of its dark waters may be lessened!

Brooklyn occupies a situation unsurpassed for beauty and salubrity. Yet, according to the Health Officer's report for the last year, one in every forty-two of the inhabitants died; the year before last, the mortality was reported to be one in forty-three. There is good reason to believe that both reports are more favorable than the reality.

It is worthy of particular notice that in the bad neighborhoods before named the adults largely outnumber the children. This may be explained by the circumstance that most of the children die soon after they are born.

During the progress of civilization, in England and in many other countries, many diseases have disappeared, and one of the most fatal of ancient times, small-pox, has been nearly eradicated. But in our city last year there were ninety-three deaths from small-pox, every one of which might have been prevented. But worse than this: while in England deadly diseases are disappearing, among us they are increasing. Diphtheria and malignant pustule for the first time appear in our mortality lists, there being reported thirteen of the former and four of the latter of deaths from these diseases.

In ancient London there was a fatal throat malady and malignant pustule—as we now have it—traceable to the same causes. In the great city of London, now more healthful than all England besides, the probabilities of human life are ten per cent. greater than in Brooklyn!

And of our own cities: in Philadelphia, a city in no respect so favorably situated for health as Brooklyn, and three times as large, the mortality last year was one in sixty-four against our *one in forty-two.* But I will not weary you with statistics, they are multitudinous. There is yet much more to task and to interest the spirit of enterprise so characteristic of our citizens. And though there are doubts by some whether the task of sanitary reform is destined to be accomplished among us, yet surely the greatness of the aim is worthy of the trial.

There have been desperate struggles made to accomplish objects far less worthy, nay, let us add, far less hopeful.

It is better to train and lead than to punish: better to coerce by moral than mechanical influences. Reputation, too, is to be won and glory achieved in this direction—not less brilliant and far more lasting than that won in the battlefield or in the field of political success.

All human sympathies may find exercise in the work, for it is not the nature of mankind that great evils like these should be scattered among us or anywhere within the scope of intellectual progress; and the highest state of human progress furnishes the standard to which all should be elevated. Selfishness and barbarism are noxious agents everywhere, and as such they should not be tolerated; for it is neither the nature nor the habit of the human constitution to become so accustomed to conditions inconsistent with the highest state of intellectuality as to be unaffected by them. Cleanliness and refinement bear the same relation to each other in the progress of civilization as do filth and moral uncleannesss in the degradation of uncivilized communities; and the connection of cleanliness with civilization is everywhere manifest in direct ratio with mental culture.

Many remedies will suggest themselves, and but few need be named. One, however, is so commendable as to be unquestioned. Every child should be vaccinated before admission to any school, public or private.

But to bring about this and all objects essential to the highest state of public health, a Board of Health should be constituted and with no political alliances further than may be necessary for summary proceeding for every case requiring its functions.

The philosophy of cause and effect has cleared the question of most of its difficulties, and we can but trust that far-reaching views will be combined in its solution with soundness of judgment and promptitude of action, and that a liberal spirit will animate all parties in the furtherance of so grand and beneficent a work. But until we discipline the mind of the multitude, give it the power and the habit of governing itself, as well as teaching itself, release it, so to speak, from the iron bondage of utter ignorance of the laws of life and health and withdraw it from the veil of utter darkness; till we can reach the moral sense and inspire poverty with self-respect, self-reliance, and the courage to pursue paths open to the lowest as well as the highest; not until we have done this shall we have accomplished a complete sanitary reform and fulfilled the true purposes of our nature.

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THE GALVANIC TREATMENT OF FIBRO-MYOMATA.*

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(*Continued from page 366.*)

If a muscle through which the blood is circulating be exposed to the action of heat at 118 F., to distilled water, to acids, even of the weaker kind such as carbonic acid, to various chemical bodies, and to the effects of freezing and then thawing,† it passes into a state known as *rigor mortis.* In this condition it is devoid of irritability. It is strongly contracted in the direction of its length, and is less elastic; it has a whitish, curdled appearance and an acid reaction. The previously transparent muscle tubes appear opaque and flocculent, and their contents solid. The essential process in rigor is a contraction of the contents of the muscle tubes whereby they become solid. The analogy between rigor and the active state is very close, and it has been assumed that coagulation does take place when a muscle is in motion and that the product is rapidly disposed of, or that perhaps the myosin is generated with such rapidity that it has not time to pass at once into the state of gelatinous solution, but enters for a moment into the undissolved condition which does not appear under slower decomposition until considerable concentration (Gamgee). Recognizing the fact that *rigor mortis* can occur in muscular tissue while the circulation is maintained, the writer desired to ascertain if this condition was brought about by very strong galvanic currents. A dog was thoroughly anæsthetized, and a current of seventy-five milliampères passed through the wall of the left ventricle, one electrode being placed in contact with the diaphragm and the other over, and in contact with the pericardium. A piece of the muscle that was in a direct line with the current was excised, and a fresh section prepared. Another section of the ventricle outside of the direct line of current was also prepared in the same manner, and they were compared and the following differences noted : In the section affected by the current the transverse striæ were much less distinct than in the other section, seeming granular, and the tube seemed much more opaque. The fibres were also less regular.* The tendency of this experiment is toward the fact that there is a direct effect on the muscle cells with the seventy-five milliampère current. Whether this change be due to *rigor mortis* remains to be shown. The heart was selected for the experiment because, while in many respects it is classed as an involuntary muscular structure, the striated markings of its muscle tubes render changes more readily discernible. How far we may compare the results obtained in the heart muscle with those that would exist in non-striated muscular fibres, of which the myomata are largely composed, is yet unknown.† A spontaneously coagulable substance in the non-striated muscular fibres under certain conditions may be assumed from the occurrence of a death rigor (Hermann), and the writer thinks it is not improbable that this is the condition found. If the death rigor occurs in any considerable part of the muscle tubes of the tumor there would result a marked diminution of its irritability, for it is a well-known fact that the muscle under this condition ceases to respond to stimuli.‡ It is not easy to estimate this on the living subject, but the following experiment was made with this object in view, viz.: to determine if there was any difference in the irritability of the uterus before and after treatment. As it is not possible for obvious reasons to observe the contractions of the uterus, the following indirect method was utilized.

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* Prize Essay of the Alumni Association of the Long Island College Hospital for 1888.

† Herman. Human Physiology, p. 281.

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* This experiment was performed in the laboratory of the Long Island College Hospital, and I have to acknowledge the kind aid of Dr. J. M. Van Cott, Jr., Pathologist to that institution.

† The properties of the two classes of muscles are, as far as they have been investigated, almost identical; but the respiratory and chemical changes are due to activity and the electrical conditions; the formation of heat, etc., of smooth muscles have yet to be made out (Hermann).

‡ Welsh made an interesting observation in this respect. "Once, in teasing out, in a warm room, a bit of fatty heart-muscle from one of the rabbits, I made a curious observation. Near the edge of the cover glass, where there was a slight current in the physiological salt solution, rythmical contraction was observed in a group of muscle fibres. This interesting spectacle could be watched under the microscope for ten minutes. These contracting fibres were filled with fatty globules, and only here and there, and then indistinctly, could any trace of striation be detected." - (The Cartwright Lectures on the General Path. of Fever, 1888.) This observation shows that under some conditions, even where the striæ are not to be found, contraction can take place, but probably only under most favorable conditions, for very short periods.

Contractions of the Uterus are followed by Contractions of the Vagina.—It is assumed that the contractions of the uterus are followed by contractions of the vagina which are in direct proportion to them. Kehrer* found in his experiments with rabbits, that exposure to air would give rise to a contraction which advanced through the whole genital canal, while by chemical, mechanical, electric and thermal irritation contractions could be started at almost any point and were transmitted in one or the other direction, so that an increase in the vaginal pressure would indicate a contracted condition of the uterus. This method of indicating contractions of the uterus has been utilized by Milne Murray,† of Edinburgh, in his experiments on the effects of hot water on the uterus. The following method was adopted by the author. A rubber bag by which the vaginal pressure is to be determined is filled with water and communicates by a rubber tubing with the proximal arm of a U-shaped glass tube which contains mercury. The other arm of the glass tube is opened at the end. When any pressure is made on the bag the column is pushed back, and this raises the discus of the mercury in the distal arm. The variation can be read by means of a graduated scale. The chief sources of error in using this means of measurement, arise from having air mixed with the water, or having the tube of such thin rubber that it readily becomes distended by pressure.

There are two methods of measuring the effects of stimuli on muscular contraction, one is by observing the comparative strength of the contraction, and the other is by ascertaining the smallest amount of current that will give a contraction, and the latter method was in this instance adopted. The induced current with a sliding induction coil was used. The cell used was a constant one. The patient in position, the electrode was placed in the uterine canal. The bag filled with water was then introduced, and after waiting five or six minutes for the vagina to become accustomed to it, the faradic current was very gently turned (the other arrangements being exactly similar to those used in the ordinary treatment) until contractions were induced in the uterus. The amount of this current was carefully calculated. The constant current was now gradually substituted by means of a rheostat until sixty milliampères was registered. In about a minute the column of mercury showed an increased vaginal pressure of one-sixteenth of a pound.

The current was turned off very gradually, and the patient allowed to remain perfectly quiet for twenty minutes ; at the end of this time the slightest induced current that would give a contraction was considerably less than before the treatment.*

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* "Peristalsis of the Genital Tract." Chadwick, Trans. of Am. Gyn. Soc., vol. x.

† Edinburgh Med. Journal, Aug. and Sept., 1886.

Direct Irritant Effect of the Current.—Does the current leave a condition which tends to induce firm uterine contraction, as hinted by Dr. T. Addis Emmet, when he said that he had seen diminution in size produced by an irritant such as a sponge tent which set up a strong uterine contraction, and is this diminution in size permanent? This assumption can only be discussed when some one has carefully studied the condition of the uterus several weeks before and after such treatment that is followed by favorable results.

The precise effect of the current on the nerves of the tumor is a difficult matter to determine. Dr. Martin says: "I believe that electricity powerfully concentrated as it is in this treatment in passing through these tissues has oftentimes some such destructive effect on these trophic nerves, or nerves which carry a trophic influence and thereby cut off the power on nutrition in the tissues." He refers to "peculiar irritations of motor or other nerve trunks or their branches which are supposed to contain inherently or in close association trophic influence which will oftentimes cause progressive or rapid atrophy of the tissues under their control." This theory is entirely speculative, and, while ingenious, can hardly be considered until we have more anatomical and physiological data.

The effect of the positive pole in preventing hæmorrhage is, in my opinion, entirely due to its caustic effect, and could be brought about as effectively with the galvano-cautery were it possible to so use it as to bake the tissue as we sometimes do outside of the body.

The Effect on the Connective Tissue.—Dr. William H. Baker states it as his opinion, "That electrolysis establishes a process similar to that which occurs without the intervention of any outside agency that we are aware of, i. e., an interstitial inflammation of the connective tissue, and in its resulting cicatricial contraction the muscular fibres are so compressed that fatty degeneration occurs, which being absorbed the growth diminishes in its volume or entirely disappears." He cites in support of this view a case in the practice of the late Dr. Peaslee, in which such a result followed the puncture of a fibroid by an aspirating needle used for diagnostic purposes. We will concede that an acute inflammation of the connective tissue may, and sometimes does, ensue in fibroid tumors ; but as it could readily result in the formation of abscesses, we believe it would be attended with great danger to the patient, and therefore not desirable to attempt to produce. The so-called chronic interstitial inflammation, of which we have an analogy in the processes that take place in the kidney and liver, might undoubtedly in its contractile stage produce such a change as is supposed to have taken place in a case reported by Kidd, where the tumor, which reached midway between the umbilicus and symphysis, shrank until only a small portion could be detected. Several gentlemen have spoken of its action upon cells, "cell liquefaction," but the term is so indefinite that it reminds one of the so-called catalytic process of the physiologists.

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* Unfortunately the writer has been unable to repeat this experiment, but hopes that others may do so.

Dr. Martin, in reviewing the causes of the action of the galvanic current, advances the following theory, which I will give in his own words. This theory involves a conception that many men entertain, as evidenced by the distinctive application to this treatment of the term electrolysis, and I believe it in my power to absolutely demonstrate its fallacy. Dr. Martin says: "Electrolysis only occurs in that part of the body which is in a fluid state. While the galvanic current passing through a soft living tissue has not an interrupted fluid medium, it has practically a fluid medium divided into innumerable little compartments, each one separated from the other by a thin wall of solid. During the passage of the current each of these particles of solids acts as a positive electrode on the fluid between it and the next solid particle in front, and as a negative electrode upon the fluid between it and the solid particle behind it. Each molecule of fluid in a conducting solid, therefore, in the line of the galvanic current may become electrolysized." He imagines a chain of innumerable compartments of tissue, in each of which an electrical reaction takes place. Either of the three following reductions would seem to prove this theory untenable:

First.—Let us suppose that four compartments are side by side in a straight line, as is represented by the following diagram—
+(+HCl, HCl—) (+HCl, HCl—) (+H_2O, H_2O—) (+NaCl, NaCl—)—
the first two containing chloride of hydrogen, the third water, and the fourth chloride of sodium. If a strong current be passed through this line, the first two cells will be filled with chlorine and hydrogen gas, the third hydrogen and oxygen gas, and the fourth with chlorine gas and sodium. Just imagine how the tumor would balloon up immediately after treatment!

Second.—The counter-current, besides the internal resistance in each of these little particles of tissue, would make an enormous counter-resistance, and would be out of all proportion to what we know must exist.

Third.—If the membrane is dry and does not permit the current to pass, no reaction can take place; and if any moisture exists, no such action would take place. Further comment is unnecessary.

Dr. W. Woodman Webb very frankly remarks: "With regard to the mode of action of electricity used curatively in such cases, we must for a time be contented with knowing the fact that it does what we propose to do in a manner safe, comparatively easy, and in a reasonably short space of time."

Experiments on Fibroid Tissue.—How the electric current brings about the arrest of the tumor growth and its diminution of size, has given rise to much speculation. The effect is produced either at the poles or between them, and I have studied these effects on fibroid tissue outside of the body. A piece of fibroid tumor about six centimetres square is so cut that it presents as its upper surface a smooth plane of white tissue with a pinkish tinge. The end of a platinum probe and of a piece of copper wire of about the same size are allowed to rest on the tissues about three centimetres apart. If now a current of twenty milliampères be used, the first thing noticed will be a white froth at both poles, and the odor of a gas which is soon perceptible throughout the room. If this froth is brushed aside, there will be noticed, extending directly from either pole, a circle of brown color,* which at the end of three minutes is fifteen millimetres in circumference. I have named these portions of changed tissue about the poles for convenience the positive and negative polar masses. The color is very similar to that of tissue that has been slowly baked by Keith's method. At the end of fifteen minutes the size of the circle has not increased very much, but certain other changes have taken place. The periphery of the positive mass is depressed, leaving the sharp-cut border of the surrounding tissue. The centre of the brown patch is slightly higher than the surrounding structure, and slopes down symmetrically to the periphery. At the apex, where the probe has been in contact with the tissue, a dry, whitish appearance is observed. We make a section through this brown mass from above downward, and find the color is lighter than on the surface, and that the vertical distance is about equal to the horizontal surface measurement of the mass. The mass is hard when pricked with the point of a needle, and the reaction of the exuding fluid markedly acid.

At the negative pole a band of tissue of a reddish brown color extends outward from the positive pole in about the same time and of about an equal distance. It is not so circular in outline, however, and, although there is a distinct line of demarkation between it and the surrounding tissues, it is not so well marked as in case of the positive mass. The edges are also elevated slightly, sloping up toward the centre, which is the highest point. A vertical section from before backward, and from side to side, shows the mass to be semi-hemispherical. The color is a dark red, and has a jelly-like appearance. It is soft when pricked with a needle, and is full of fluid. If the surface of the mass is touched with litmus paper, the paper instantly turns a deep blue.

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* No two people to whom I have shown this experiment could agree on the color.

After passage of the current for some time, the conductivity of both masses is decidedly diminished, as is shown by an attempt to pass the current directly through either of them. A narrow strip of tumor, one and one-quarter inches long, a half an inch wide, and three-quarters thick, was placed between the electrodes, and fifteen milliampères of current indicated by the meter. The masses gradually developed from the ends, and continued to spread until they met. Shortly after this took place, the milliampèremeter ceased to register any current. A larger piece was used with the same current, and the conductivity became greatly diminished before the areas were in contact. The reactions to litmus paper that have been noticed were strictly confined to the polar masses.

Some of the changes that take place in the polar masses have been mentioned. In order to determine whether they occur to any extent in the intermediate portions, the following experiment was made. Three portions of the fibroid tissue were placed in a line and the electrodes applied to the terminal pieces. As soon as the polar masses approached the middle piece, new terminal pieces were substituted, and this continued with a fifteen milliampère current for over an hour. The changed tissues always extended from the pole by continuity and no change could be noticed in the intermediate piece of fibroid. When the pieces were finally left the masses spread through the intermediate portion. No change could be detected in the intermediate portion before extension of the polar masses, either by the unaided eye or the microscope. It was also desired to know if the central portion had suffered any diminution in weight, so it was carefully weighed before and after the experiment. To guard against the error arising from the evaporation of water from it, a piece of about the same size was placed on the table near it and also carefully weighed before and after the experiment. By comparing the weighings, it was found that the intermediate portion sustained no loss except by the evaporation of water from its surface.

These experiments show that with the use of strong currents that the polar masses represent considerable areas of tissue that have become greatly changed, and so far as they encroach upon the nutritive supplies to the tumor so far must they modify its growth. The experiments cited show that they are not unimportant factors.

Method of Using the Current.—It may be applied in one of two ways.

First. By puncturing the tumor by one or both electrodes through the abdominal wall.

Second. By the method of Apostoli; this consists in passing a powerful current through the abdominal wall by means of a large disbursing electrode.

Of the first method we can say but little in its favor. That it is attended with danger one fatal case reported by Dr. Freeman (and we believe that there are others that have never been reported) and the frequent cases where large masses slough out after the treatment will attest.* We have yet to hear of a case where unfortunate results followed the use of Apostoli's method and where the currents used were less than one hundred and fifty milliampères. If one elects to puncture through the abdomen, in spite of its dangers, a round pointed needle insulated to as near its point as the amount desired to be exposed, should be used. There is a decided objection to a steel needle that is covered by shellac as an insulating material. It may become broken, and if this was not noticed, its use, particularly where the patient is etherized, might be attended by the most serious consequences. Before puncture the abdominal wall should be made surgically clean and the needle likewise. All antiseptic precautions should be scrupulously followed. It often requires great force to insert the needle into the tumor. The abdominal puncture, in the opinion of the writer, should not be used, because equally good results are obtained by a safer method. It is more dangerous than Apostoli's method, because:

a. The needle may introduce septic matter.

b. If sloughing does ensue, a tract is left by which pus might find its way into the abdominal cavity.

c. If there be diseased appendages, for example, a tube filled with pus, this would be emptied into the abdominal cavity.

d. If large veins are punctured, and these are sometimes present on the outside of the tumor as large as my thumb, (as the writer can attest by personal experience) serious hemorrhage may ensue.

Apostoli's Method of Treatment.—For this treatment four things are necessary: a milliampèremeter to determine the strength of the current; a rheostat, so that the current may be gradually increased and diminished; electrodes, and a battery.

The Milliamperemeter.—This consists of a galvanic needle so arranged that it is affected by a current passing in certain relations to it. The ampere is the unit, but as only a small part of the unit is used the instrument is graduated in one thousand parts, or a milliampere. Even approximately accurate instruments have been until recently very costly, but there are, however, now in the market several that are reliable enough for the purpose of the physician. I have used the milliampèremeter of Mr. John A. Barrett, and found it entirely satisfactory. So much has been said of the impossibility of procuring an instrument that was at all reliable in this country, that I took the trouble to determine the error in my own instrument, which is less than four per cent; this is sufficiently accurate for practical purposes. The error of a Hirschman instrument that had recently been imported was found to be more than this.

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* This criticism is also applicable to those cases where currents of excessively high intensity are used.

By means of a shunt the instrument can be made to register up to two hundred and fifty milliampères, which is a greater current than I believe warrantable. Dr. Playfair says that: "Apostoli's galvanometer is only graduated up to two hundred milliamperes, and he never exceeds this and generally works with lower intensities, at least with the negative pole. The action of the negative galvanic current in electrolysis is probably simply that of a strong stimulus to absorption not of a cautery . . . . the lesson to be learnt from which is probably that very high intensities should be avoided."

Without the shunt the resistance is one hundred and fifteen ohms, as I have personally measured, and with it it would be reduced to an insignificant amount.

The Rheostat.—By means of this instrument introduced into the circuit, the current can be as gradually increased or diminished as is desired. The principle of its construction is the insertion or withdrawal from the current of a definite amount of resistance. Water is most commonly used for the resisting body. Two plates of metal are so arranged that they can be brought in contact or separated under water at will. When in contact the whole current passes, but when made to separate the current is proportionately diminished. Most of the water rheostats have been very imperfect in action. The best that we are acquainted with is that invented by Mr. Bailey. It consists of two plates of carbon that are gradually lowered into the water. The writer used this rheostat for some time, and the only objection to it as a non-portable instrument was that water would sometimes remain between the plates, so that when the current was turned on the patient would immediately feel the effect of five or ten milliampères. This is enough to cause a disagreeable shock. Its large size prevents its being easily carried about.

Mr. John A. Barrett has invented a rheostat that seems to be perfect. It may be used with a powerful induced current, and will increase it so gradually that if the electrodes be placed on the tip of the tongue it is impossible to say just at what time the current commences. Its principle of construction is that of compressing a substance containing carbon in a finely divided form. The greater the pressure the less resistance offered to the passage of the current. It can be carried about in the coat pocket. Its minimum amount of resistance is less than fifteen ohms. Three things are desirable in a good rheostat: It should be portable, it should allow the current to be increased and diminished without jerkiness, and its minimum amount of resistance should be small.

Electrodes.--The electrodes are two in number, an abdominal or dispersing electrode and a uterine electrode. For the dispersing electrode we must have a broad surface that will intimately adapt itself to the abdominal wall. If it does not do this, the points of greatest contact may become blistered. Dr. Apostoli used a placque of clay, which was covered by a copper plate. This answers the purpose admirably, but the wet clay soils the person and clothing of the patient as well as of the operator. Dr. Martin devised an electrode which consisted of an animal membrane tightly stretched over a hemisphere of metal, having the space between the membrane and the metal filled with salt water. I have never used his instrument, but some of my friends have discontinued its use because of its readiness to leak. Punk and other materials have been used, and Dr. Rockwell recommends simply cotton well saturated and covered by the metallic plate. Dr. Skene has found this sufficient. I believe this will answer the purpose if only enough cotton be used. The size of the plate is a matter of no little importance, and the most accurate way of designating it is by expressing its area in square inches, and from thirty to eighty square inches or more are used. By using an adjustable clip to the copper electrode a separate one may be cut from a roll of copper for each patient, at a trifling cost.

The Uterine Electrode.—This should be made of a metal that will not oxidize by the passage of a current, and platinum is found to be most serviceable. It is of the utmost importance to have the electrode in close contact with the walls of the uterine canal; and from what we read, I am inclined to believe that when a good apposition is secured it is rather the result of accident than of adapting a means to an end. Dr. Martin speaks of two sizes, one with a diameter of three and the other of five millimetres. I believe that there should be at least three sizes, one of two millimetres, one of five millimetres, and one of seven millimetres. The length of the platinum portion of this instrument should be such as to give about four square centimetres of contact when used with a current of a strength of fifty to one hundred milliamperes for five minutes. I have adopted Dr. Martin's suggestion in this case. I am sure that any one who thinks it an easy matter to pass a probe through the meandering path of a uterine fibroid, has thought he accomplished the result when this was not so, or has had a slight experience and that with favorable cases. Aside from the difficulties of passing the uterine electrode, the variations in the size of the uterine canal should not be forgotten, and for this reason I insist upon at least three sizes of electrodes. The size of the canal varies so much with different degrees of contraction of the uterine tissue that we rarely find it in the same case twice alike. After menstruation, while the patient is undergoing treatment, the canal is very small; while ordinarily, the reverse is the case. And while I have as yet observed too few cases with the object of noting this condition, to speak with any degree of positiveness, yet I am strongly inclined to believe, from clinical observation, that in the case of a fibroid rapidly increasing in size we will find after each menstrual period the os dilated sufficiently to introduce one or two fingers. I have never seen this stated, but believe it to be worthy of investigation.

Platinum is a costly metal. The expense of having so many electrodes is an important factor. I went to one instrument maker who stated the price of the uterine electrodes after Apostoli's model would be $40.00. I have overcome this difficulty, and an efficient and convenient platinum electrode may be had for about $3.00. The expense of the instrument is mainly caused by the amount of platinum used. Martin proposed to overcome this by using platinum wire and winding it about a copper core. If the positive electrode of a current passing through a portion of a fibroid tumor consist of two terminal ends, one of platinum and the other of copper, the electrolytic action will be very much greater at the copper termination. If a current of ten milliamperes be continued for ten minutes, and the tissue then divided, it will be seen that the green solution of copper has been diffused through the mass of tissue. This indicates the danger of having the slightest amount of copper exposed. To overcome the objections, and at the same time to utilize the economical suggestion, I make use of the following expedient. An ordinary bougie is selected, of the desired diameter, and the butt removed. A piece of copper wire is now adapted to the cavity. The distal end is wound with a thin piece of platinum wire for the required length, and the end of the wire pushed through the rubber and into a hole bored into the copper; by pinching the copper core, it is fastened. The copper wire, which projects about an inch and a half from the butt, is now wound in a spiral, so that an effective connection is made, and we then have an effective electrode that meets every practical requirement. This electrode should be cleansed by means of a nail brush and soap and cold water.

Dr. Skene Keith says, in regard to a flexible electrode: "We are

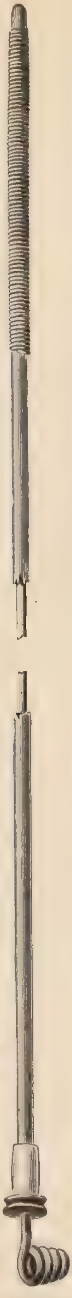


Fig. 1

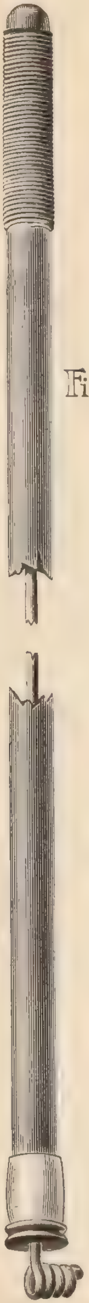


Fig. 2

Fig. 4

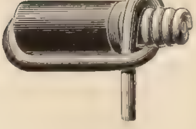
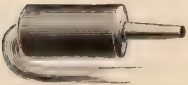


Fig. 3



told in Dublin that it is necessary above all to have a good knowledge of pelvic diagnosis; yet flexible electrodes are advocated because they are more easy of introduction than rigid ones, and can be got into the cavity when a rigid one cannot. What is this but an acknowledgment of the want of the first great essential—a knowledge of the diagnosis and manipulation." We agree with what was said in Dublin, and disagree entirely with Dr. Keith's supposition. We have been able to introduce, for example, our flexible electrode into the tortuous cavity of a fibroid that had been removed from the body, where it would have been impossible (?) to have accomplished it with one more rigid; and if this is so outside of the body, where one certainly has all the aid that could be furnished by the most accurate diagnosis, how much more is it true with the living subject?

The Battery.—It is foreign to my purpose to discuss the relative merits of the many different batteries in the market. A good battery should be constant in its action; if it is not so, there will be marked variations in the current. This is apt particularly to occur when working with high intensities, and it is caused by the decomposing fluid in the cell preventing its efficient action, both by covering the elements and causing a counter-current. I have used the Law cell with satisfaction; and when I desired a current of forty milliamperes or under, Barrett's fifty-cell chloride of silver battery has proved itself entirely competent. It is necessary to have from seventy-five to one hundred and fifty cells to obtain a current of very high intensity.

For the past few months I have used a battery that I improvised. It is economical and effective. The ordinary wide mouth quart fruit jar is used. Several layers of thick pasteboard are cut so as to fit into the neck of the bottle, and more pasteboard covers so cut that they project slightly over the side of the glass rim at the mouth of the bottle. These are tacked together and perforated by means of a carpenter's chisel, so as to permit a carbon plate six inches by one and a half inches by one-quarter inch to be pushed through it. A perforated punch, No. 11, will make a hole that will allow the zinc element to pass through. The elements are submerged in a solution of chloride of ammonium, the connections made, and the battery is ready for use. To those to whom the expense of a battery is quite an object and who have some mechanical ability, it is not difficult to prepare, and it will work as well as any in the market. Its cost, if the materials are obtained at wholesale rates, is about $15 per hundred cells.

Method of Application.—The patient is placed on a table with the clothes about the waist loose and so arranged that they can be readily pushed aside. The dispersing electrode is placed in a basin of very hot water and then adjusted to the abdominal wall. It is well to allow it to remain for as long a time as convenient before using the current, for the skin becomes a very much better conductor when soaked with water. The resistance of the horny layer of the skin is so great that Erb says all others need scarcely to be considered, and from this statement it will be seen that it is important to have it well soaked, as by this means alone its resistance is to a great degree overcome.*

The rheostat and milliampèremeter should now be placed in the circuit and the uterine electrode fastened to the rheostat. The battery may be short circuited for a moment, and if one is not positive as to which is the negative terminal, place the bare terminations in a glass of water, and it will be distinguished by the greater number of bubbles collecting upon it. The rheostat should now be so placed that no current is permitted to pass. The uterine electrode may now be inserted. This is often the most difficult part of the treatment and requires the *tactus eruditus.* I usually do this on the back, but sometimes it is necessary to turn on the side, and then the patient gently turned over on the back. The current may be gradually increased until the patient feels pain. The strength of current that a patient is able to bear without pain varies greatly. In some cases the patient will bear one hundred milliamperes, while in others it is impossible to go over thirty milliamperes. One cause of pelvic pain is an overloaded condition of the bowels, and particular attention should be given to have them empty. After the *séance* it is better for the patient to lie down for a short time. When the treatment is used for the purpose of checking hæmorrhage, the patient should remain in bed and keep very quiet for forty-eight hours.

We are quite sure to have the good results obtained by a new method of treatment called to our attention before we learn of its casualties, and this is true of the subject under consideration. When using currents of great strength we are dealing with an agent capable of doing much harm, To those who are not specially familiar with the use of electricity it is almost impossible to conceive of a patient being able to bear with comfort a current, say of one hundred milliamperes, that has been *gradually increased*, when to apply suddenly a current of less than thirty milliamperes may occasion intense suffering. The ability to bear the current might not inaptly be compared to the ease with which one can pass over the ground on an express train; but the train starts very gradually and also decreases its speed gradually. Should it attain or discontinue its maximum speed abruptly, serious trouble would ensue. The importance of making secure connections in order to avoid abruptly breaking the current should be borne in mind. Stirring the connecting cords will at times prove disagreeable, as will likewise shaking the table. Using the positive pole inside of the uterus may give rise to a stenosis, as occurred in a case that came to my notice. A nurse was permitted to give the treatment, and from the contracted condition of the canal it is presumed that she used the poles improperly. This illustrates the danger of indiscriminate use of this method. It should never be used except by an expert. A current strong enough to throw a patient off a table by causing powerful muscular contractions, is one that is not to be trifled with, and a wet towel or any conducting substance that would switch suddenly a current of great strength through the heart or nervous centres, might prove fatal. In short, all the dangers have probably not yet illustrated themselves, and like any other new procedure we should be on our guard for danger signals. Before closing this paper, I should be ungrateful if I did not acknowledge the kindness of Mr. John A. Barrett, to whom the medical profession is greatly indebted for his inventions, whereby he has enabled them to utilize an agent whose usefulness, without his aid, would be much more restricted.

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* While a saline solution will overcome its resistance much more effectively than simple warm water, the latter is to be preferred, as may be demonstrated by the following experiment: Allow a current as strong as comfortable to traverse any part of the body, using simple water to moisten the electrodes; lessen the current, and, after moistening the electrodes with the saline solution, increase the current to its maximum, consistent with comfort. It will then be found that the current's strengh is much less than it was with simple water; and, as it is difficult to work with as much current strength as we desire in a number of cases without anæsthesia, on account of the pain to the patient, the disadvantage of the saline solution is apparent.

DISLOCATION OF THE CARPUS, ILLUSTRATED BY CASES.

BY J. S. WIGHT, M.D.,

Professor of Operative and Clinical Surgery at the Long Island College Hospital, Brooklyn, N. Y.

A CLINICAL LECTURE.

Gentlemen:—Permit me to call your attention to the question of dislocation of the carpus, or, perhaps we might say, dislocation of the hand. I speak of dislocation of the carpus, because it is reasonable and practical to consider the distal bone as the one that is out of place. In this case the carpus may be looked upon as one bone. And at the outset let me say to you that this dislocation is rare. On the other hand, a fracture of the base of the radius is a frequent injury. And we may include the diastasis of the lower radial epiphysis with fractures. But it may be noted that diastasis of this epiphysis is somewhat rare.

In this place you may remember the fact that there is displacement of the hand in a case of fracture of the radial base, but the distal fragment goes backward with the carpus; and when this fragment is short, as it often is, it will be somewhat difficult at times to be sure of our diagnosis. This is especially so in a case of diastasis. The average length of the distal radial fragment is only a little more than one-fourth of an inch; and the lower radial epiphysis is about the same length. And so we may well understand why the surgeons of years ago had so many cases of dislocation of the hand. The hand indeed was displaced backward, but it frequently carried along a short fragment of the radius. Even the radial fracture described by Colles had a distal fragment whose length was about one inch and a half.

In this place let me give the main points in two cases that I incline to classify with dislocations of the carpus:

Case I.—A boy, fourteen years of age, was kicked down cellar by a man on the evening of October 14, 1879, and received an injury to the left wrist. On examination, the concave floor, as well as the double obliquity, of the base of the radius could be distinctly felt. The forearm was nearly extended, and was somewhat more than semi-pronated, and could be slightly moved by volition. The hand was slightly flexed, somewhat inrotated and considerably adducted. The fingers were semi-flexed. Voluntary motions of the hand and fingers were lost, and the radial artery could be felt running across the outer surface of the base of the radius obliquely from above, downward and backward. The carpus was dislocated upward and backward about one inch. The carpus was reduced by traction and counter-traction, accompanied by forward pressure on the hand and backward pressure on the base of the radius. Then it became evident that there had been a diastasis of the radial epiphysis, for there was mobility at the seat of the epiphyseal cartilage, as well as a "grating" sensation when the fragments were pushed forward and backward. In fact, there had been a dislocation and a diastasis at the same time, and the epiphysis was not displaced till the carpus had been reduced.

Case II.—On the evening of April 8, 1880, a fourteen-year-old boy was running along the gutter, between a carriage and the curbstone, when he fell on the palm of his left hand, and his left hand and his left forearm came under his chest in nearly a transverse direction. On examination, the following facts were apparent: The concave floor and the double obliquity of the base of the radius could be traced under the flexor tendons. The radial artery could be felt running obliquely across the outer surface of the base of the radius from above backward and downward. The forearm was nearly extended. The hand was slightly flexed, inrotated and abducted. The fingers were semi-flexed. The voluntary motions of the hand and fingers were lost. The carpus rested on the back of the base of the radius, overriding it about one inch. Traction and counter-traction, aided by pushing forward on the hand and backward on the forearm, readily reduced the carpus. Then it was evident that there had been a diastasis of the radial epiphysis, because there was a grating sound and mobility at the location of the epiphyseal cartilage. A dislocation and a diastasis had both happened at the same moment. And when the carpus had been reduced, the epiphysis became displaced.

Now I saw both of these cases immediately after the accident. There was no swelling of the soft parts to interfere with my examination, and the signs of dislocation were very clear and unmistakable. The diastasis did not appear till after the reduction of the dislocated carpus, since the radial epiphysis was held firmly in place by the flexor tendons. And it seems to me that these were cases of dislocation of the carpus, accompanied by diastasis of the radial epiphysis ; for the dislocation was the leading and most important injury.

I will give you briefly the main points in the clinical history of a case of dislocation of the carpus backward, since it had one circumstance connected with it that would prevent any mistake in the diagnosis.

CASE III.—A boy, fourteen years of age, on August 26, 1876, fell on his right hand and was brought to the College Hospital, where an examination disclosed the following facts : There was a wound on the anterior aspect of the wrist that led to the joint ; the finger inserted into this wound reached the lower end of the radius, and traced the convex surface that articulates with the carpus ; the hand was carried backward and upward, and the carpus could be felt on the back of the radial base : the motions of the hand and fingers had been lost ; and the injured limb was supported with the other hand. It will be seen that this was a compound dislocation of the carpus, and there could be no mistake in the diagnosis. There was no difficulty in the reduction by traction and counter-traction, accompanied by pressure forward on the carpus and backward on the lower part of the forearm. Anterior and posterior splints were applied, and the patient left the hospital at the end of a month. He was much improved.

Let me give you the facts of an uncomplicated case of dislocation of the carpus.

CASE IV.—On July 27, 1868, a boy nine years of age, while at play with his schoolmates, fell on his left hand, and was brought to the College Hospital, where an examination disclosed the following points: The lower end of the left radius projecting in front so that the concavity of its articular surface could be easily made out; the carpus resting on the back of the radial base, so that its outline could be distinctly traced; and the motions of the hand and fingers impaired, so that they had passed beyond the control of the will. My hospital colleagues saw this case and concurred in the diagnosis of backward dislocation of the carpus. The reduction was accomplished by traction on the hand and counter-traction on the forearm. At the end of three days this patient appeared to have nearly the normal use of his injured wrist, and then left the hospital.

Case V.—A boy, six years of age, was brought to the College Hospital on account of a fall on his right hand. He was examined by Dr. Mason and myself. The pain was severe. The concave floor of the base of the radius could be felt in front of the wrist. There was a marked convex projection on the back of lower end of the radius. There was notable deformity of the wrist, and there was immobility of the hand and fingers. It was evident that the case was one of backward dislocation of the carpus. Traction on the hand and counter-traction on the forearm readily accomplished the reduction. Then the pain ceased, and the deformity disappeared. The boy could move his hand in every way about as well as usual, and as there was no sign of fracture, he was permitted to go home.

Case VI.—A boy, ten years of age, while at play with two other boys, fell from a tree and injured his right wrist. He was taken to the police station by an officer. In a few moments Dr. W. S. Smith saw him, and found a convex projection on the back of the wrist, and made out a smooth concavity in front. The boy suffered much pain, and could not move his hand and fingers. The doctor recognized a dislocation of the hand backward and upward. He pulled on the hand and the officer pulled on the forearm, when the reduction was speedily accomplished. This boy immediately went about his play in the streets as usual, and did not suffer any inconvenience. A few days after I saw this boy, and found no sign of fracture. There was very slight swelling of the wrist, as if there had been a sprain.

Now these facts of observation lead us to certain investigations and certain conclusions. In the first place, these cases of dislocation of the carpus happened to boys under fifteen years of age. So it would appear that boys are more liable than girls to this dislocation. And this fact may be accounted for on the ground that boys are more active, more venturesome, and more reckless, and so are more exposed to personal injury. But why are boys, if indeed it is so, and it would seem that they are, more liable than men to have a dislocation of the carpus? In order to answer this question correctly, if we can, let us examine the structures and the conformation of the wrist-joint in both the young and the adult. We have here the bones of the forearm of an adult and those of a boy about ten years of age. Note how different the conformation of the lower ends of these radii. The articular cavity of the adult radius is deep and extensive. Its diameters are quite as great as any of the radial base. And the outer edge of this cavity is located on a line with the compact tissue, as it comes down from above, and this edge is sufficiently firm and resisting to prevent the escape of the carpus from its socket, and the bone will break sooner than permit a dislocation. In the next place, in the case of the young bone, note the fact that the articular cavity of the carpus is shallow and small, being much less in extent than a transverse section of the radial base. From the lip of the carpal socket there is a ring of surface going upward and outward for some distance to the largest part of the radial base, so that the entire radial base is, as it were, a double truncated cone whose bases coincide. The epiphyseal cartilage is nearly where the bones of these two truncated cones meet. The epiphysis makes up the lower cone, whose smaller part is at the articular surface.

In the young the epiphysis is undeveloped, and it seems to grow more rapidly in the vicinity of the epiphyseal cartilage, and that for a time leaves the articular end smaller than the one at the lower end of the diaphysis. You see this proposition well illustrated in this specimen. And now, seeing that the young carpus is undeveloped and small, and that its socket in the radial base is small, we have the conditions that will make a dislocation possible and probable. You can easily see how external violence can force the carpus from this shallow socket and move it upward on this oblique surface of the epiphysis.

And now another thing will become clear: a dislocation of the carpus occurs; the external violence is not all used up; it continues to act, and is applied to the epiphysis; a diastasis follows, but there is no displacement of the fragments; and the epiphysis is held in place between the overriding carpus and the overlying tendons. Now, every surgeon knows that we have complete fractures without displacements; and these injuries are not uncommon. So that a dislocation of the carpus, accompanied by a diastasis of the adjacent radial epiphysis, is not only possible but it is probable; and two such cases have come under my observation.

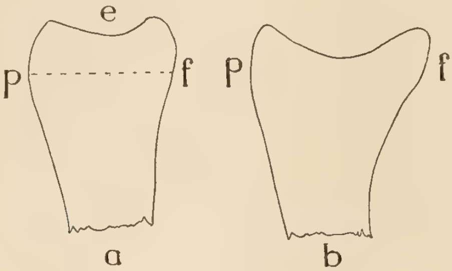
And now it may be remarked that a dislocation of the carpus is an injury that occurs in early life, for the reasons above indicated; and I am reasonably certain that cases have occurred and have not been reported. You must not conclude that a dislocation of the carpus is not found later on in life. We may admit that such cases have been seen, though rarely. It might happen that the lower end of the radial base would be incompletely developed in adult life, and it might also happen that the cancellous tissue of the radial base would suffer from interstitial absorption during advancing years, so that conditions similar to those in early life might be brought about. In either case, a dislocation of the carpus would be possible.

After having given you some points on this subject, let me present and explain a case that has been sent to me as one of dislocation of the hand. About six weeks ago, this boy, who is now about ten years of age, fell on his right hand, and for some reason not explained received no treatment. This case does look as if it might be a dislocation. See the deformity, and note the disability. The hand has been displaced backward the thickness of the base of the radius. But if I take firm hold of the wrist and move the hand to-and-fro, I find a line of motion running across the displaced structures in such a way as to leave a piece fastened to the radial shaft. This piece is about one-fourth of an inch in length, and is the lower radial epiphysis; and the line of motion is the wrist-joint, that has become impaired by traumatic inflammation. The diagnosis in this case is diastasis of the lower epiphysis of the radius; and as it has existed for six weeks it is *ancient*, so that instead of a dislocation of the carpus we have an ancient diastasis.

Now, the disability is very great. Can we remove it, and can we improve the form of this wrist? Under the influence of ether, I infract the new bone between the epiphysis and the diaphysis, so as to renew to some extent the conditions of the original fracture. The persistent anchylosis of the wrist-joint aids me in reaching this result. See—I am using very great force. Let me tell you that these cases entail grave responsibility. At last, note the result. I have accomplished a desirable reduction. Splints must now be applied to keep these fragments in place, in order that they may unite; and a long course of passive motion of the hand will be required to restore the function of the wrist-joint.

It would, therefore, appear that a dislocation of the carpus is an injury that is apt to occur in early life, and in this respect it resembles the case of a diastasis. In fact it will be seen that the two injuries may occur at the same time, that the carpus may be dislocated and the ephiphysis consecutively separated. And I may remind you that a diastasis with backward displacement may be mistaken for a dislocation of the carpus, if the surgeon is careless in making his diagnosis. And if you were in doubt in regard to the nature of a given case, it seems to me that the reduction of the displaced or dislocated structure ought to make you reasonably certain whether you have a diastasis or a dislocation, or both of these injuries combined.

And it would also appear that a simple dislocation of the carpus may occur, that the dislocated part may be easily reduced, and that the hand may be used again almost at once; thus showing that no serious damage had been done to the capsule, or the tendons that span the joint. On the other hand, this injury may be severe; it may be compound, or it may be accompanied by a diastasis. Then the treatment would be different. In one case, the wound would have to be treated; in the other, we would have to treat a fracture of the base of the radius.



In order to show how the conformation of the lower end of the radius in early life differs from that of the adult, I have drawn the figures *a* and *b*. I did this in the following way: In the first place I procured the radius of a boy about twelve years of age and the radius of an adult. Then I procured two thin, narrow, long pieces of lead; these I carefully bent over the radial ends, pressing them down so as to touch the articular and adjacent surface of the bone. The pieces of lead were then gently slipped sideways from the radial ends. The inner surfaces of these pieces gave me the outline of antero-posterior sections of the lower ends of the two radii. Then these pieces of lead were laid on paper, and the form of the inner surface carefully traced. The one applied to the young radius gave the form in fig. *a*; the one applied to the adult radius gave the form noted in fig. *b*. The posterior surface of the bone is at *p*, while the anterior is at *f*. The epiphysis is shown at *e*. And in fig. *a* the line *p*. . . . . *f* shows the location of the epiphyseal cartilage. These two figures make plain the following facts: The lower end of the adult radius is more expanded and has a deeper socket than the young radius; the largest part of the adult radius is nearly at the articular end; the widest part of the young radius is nearly at the plane of the epiphyseal cartilage; the posterior lip of the carpal socket of the young radius is notably undeveloped; the conformation of the base of the adult radius is such as to greatly obstruct a dislocation of the carpus; the conformation of the base of the young radius is such as to permit the carpus to be driven out of its socket. Hence, in regard to dislocation of the carpus, the facts of structure are consistent with the facts of clinical observation; and a dislocation of the carpus is more apt to occur to the young than to the adult.

SIMPLE METHOD OF MAKING CASTS IN PLASTER OF PARIS.

BY FRANK L. R. TETAMORE, M. D.

Demonstrated before the King's County Pathological Society.

Physicians often desire a cast of a pathological specimen, anatomical dissection, or of a part showing an abnormal condition before an operation, and to show the result after an operation.

Pathological specimens can not always be preserved to show to an advantage, nor is it convenient to remove them from the preserving fluid. I will try to demonstrate a simple method by which a plaster cast can be made accurate, and with very little skill to be required.

1st. Soft preparation of any kind as anatomical dissections, frozen sections, dissections of the brain without being hardened. The viscera or any organ in situ, tumors, deformities or any pathological condition, where the patient can bear the heat of the paraffine.

Soft preparations, or in fact preparations of any kind should not be put in any fluid to harden before casting. All objects for reproducing in plaster must be free from all excessive tissue, fat, etc., and nicely dissected, all surface moisture absorbed with blotting paper or a towel. All soft projecting parts to be suspended to a light frame work of some kind with threads.

If a preparation of a pathological specimen is the object, after it is all prepared as above, lay it on a smooth surface—a large plate, or plate of glass is better. Arrange to show every part, under cuts will not prevent in any way a perfect cast. With a soft camel hair brush, paint a very thin coat of oil over the preparation evenly, leaving no excess of the oil.

To make a cast of any part of the living body, apply a strong solution of cocaine when there is an exposed surface. In some cases it may be necessary to give an anæsthetic when the skin is not removed in any way; a $\frac{1}{20}$ solution of carbolic acid applied to the part 2 or 3 times will act as a local anæsthetic. Apply a thin coat of oil, apply the brush in the direction of the hairs; when there is much hair apply a thin solution of soap.

2d. To make a mould, melt paraffine in a water bath. The heat required will be above 130° F. Use a soft camel hair brush about 1 inch wide, dip the brush in the melted paraffine and apply quickly to the object, only touching the tip end of the brush, and with one stroke apply the melted paraffine in this way to every part, and continue until enough paraffine covers the part to make ¼ inch in thickness.

Great care must be taken in applying the first coat, as the paraffine will harden so quickly that the brush will draw the preparation out of place.

The mould may be cooled with cold water, and when hard, the preparation can be very readily removed. The mould must be washed clean at once with cold water, when it will be ready to be filled with plaster

3rd. Procure fine dental plaster of Paris which must be free from any pieces of wood or paper. It is better to sift through a fine sieve. The mould should not be oiled. If the cast is large mix only enough plaster at first to cover the surface of the mould about ¼ inch thick. If small, enough may be prepared to finish running the cast. Select a suitable vessel of earthenware and put in a sufficient quantity of water. Stir in the plaster gradually until it is of the consistency of cream, pour into the mould and handle it so that all the surface is covered. Then pour out the liquid plaster, pour in and out until the plaster sets. If it is a large surface, paint the plaster over with a soft brush, washing out the brush before the plaster sets.

When enough plaster has covered the surface and sets to a thickness of about ½ inch, with large casts one inch—make a bed of plaster on a plate or glass, turning the mould on this, which will form a smooth surface for the under side of the base. A little sulphate of potash added to the water, 1 dram to the pint, will make the plaster harden quickly.

4th. When the plaster is hard, after waiting about one hour, immerse the whole in a vessel containing boiling water which will melt all the paraffine leaving the cast free. Pour boiling water over the cast after it is removed from the vessel, which will leave the cast white and clean. The paraffine may be used any number of times. It can be readily removed when cold.

The cast should be turned up, and set away to harden and all the moisture to evaporate, which will require about one week or ten days if kept in a warm place. It can be coated over with white shellac varnish and colored with oil colors.

It will be a pleasure to give any information to those who may be interested in making casts.

EDITORIAL.

THE DIRECTORY FOR NURSES.

The Directory for Nurses, organized and conducted by a committee of the Medical Society of the County of Kings, has passed out from the period of experiment into the strength of a permanent, useful, and self-supporting institution. It is about completing the third year of its existence, has on its register the names of two hundred and sixty-seven nurses, to whom it has given occupation in thirteen hundred and nine families, not only in this city, but in the various parts of the country, and has been patronized by three hundred and twenty-six physicians. The Directory in this city was not without precedent, for similar directories had attained an assured success in Boston and in Philadelphia, and the details of their work were carefully gone over by the committee, and adapted to the special needs of this city before the Directory was announced to the professional public of Brooklyn.

The two essentials which the Directory, in to order success, had to guarantee, were the competence of the nurse and prompt response to calls. The Directory pledges itself for the honesty, skill, acceptable manners, and experience of the nurses it sends out to duty. Before a nurse can register she must have the endorsement of three reputable physicians, as well as certificates from three families where she has served, testifying to her good character, acceptable manners, and professional capacity. In addition, after any service, a form of questions is sent to the family in which such service has been rendered, asking for information as to the satisfactory character of the service, and these constitute the record and credentials of the nurse. These are in no sense purely inquisitory, but they constitute the information on which the Directory guarantees the fitness and honesty of the nurse whom, as a stranger, it introduces into a home. The Directory proposes to defend its guarantee by every available source of information.

By a system of checks and cards, the Directory is enabled to possess accurate knowledge of the exact place where all the nurses may be at any particular day. Each nurse is required to inform the Directory immediately on accepting a position and also at the conclusion of any service, and is expected to hold herself in readiness to accept promptly any duty the Directory may offer her which is within her skill and consistent with her terms. The information at the disposal of the Directory enables it to know on what nurses to call for any line of service. It, of course, cannot guarantee steady occupation, but it gives immediate notice to the nurse where any call is made for her service.

Since the occupation of its new building, at 356 Bridge Street, by the Society, the Directory has had excellent accommodation in a very accessible location, and, with the aid of the telephone and the messengers of the District Telegraph Company, nurses are promptly furnished at any hour of the day or night. The registration fee for nurses and the fee for supplying them to applicants have been placed on a scale as low as is consistent with the expenses needful in managing details so numerous and important.

The committee were fortunate in securing, at the outset, the services of Miss E. K. Provost, a young lady peculiarly fitted for this work, whose exceptional executive ability and skill in dealing with a great variety of people have contributed largely to the success of the Directory.

The importance of the Directory is fully appreciated by the physicians who have come to depend on its resources. In fact it has brought a precision into the care of the sick and begotten a confidence in their management that were not understood before the organization of the Directory. The Directory has met a want and created a want. More nurses are employed in the care of the sick than there were three years ago. The training schools have, of course, increased the number of nurses, but the Directory has made the nursing corps available for prompt service, with the assurance of competent service. Knowing where nurses can be had when needed, is the impulse to employing them ; whereas, if they have to be sought after through private addresses, with the uncertainty of finding them disengaged, the difficulty of getting them is too great to justify the effort, and thus nurse and patient are at a disadvantage. The Directory has established a base of supplies, and its great services have affirmed the need of its existence. It has already established itself as one of the most helpful institutions of relief in the city.

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PHYSICIANS AND EXECUTORS.

Death is inevitable to all. Sooner or later, and if only to promote the euthanasia, the physician's service is as much sought after, and is as needful where the patient's doom is sealed, as when his efforts are to be successful in averting death and restoring the sick to life and further usefulness. It not infrequently occurs that executors do not recognize the debt of honor in the former case, and pay the physician's account promptly, but take advantage of the twelve or eighteen months that the law allows them, classing the physician's bill for service with mercantile accounts. There is an injustice in this, and also a hardship oftentimes. The nurse and the undertaker may be paid at once, under the provision of the law, and this is proper. But the fee of the consultant, called in by the family in extremis, and the bill of the attendant, must frequently go over for from a year to a year and a half because of the ugliness or the importance of a brief authority of the executors, who plead the possibility of a personal accountability if they pay one bill before the estate is prepared to pay all claims. There are, of course, cases of doubtfully solvent estates, where this plea may hold good; but where the estate is solvent, the physician's is the prior claim. Men who know they must die, and who, in periculo mortis, are only too eager to have unremitting attendance, should provide in their wills that their physician's account for service should have precedence. "Man's most sinful sin, ingratitude," blossoms out here about as luxuriantly as anywhere.

SANITARY REFORM.

We desire to call the attention of our readers to the address of Dr. A. N. Bell, which is published in this number of the JOURNAL, and which was delivered in 1860. It is of great interest as being the first essay on the subject of sanitary reform ever read to a Brooklyn audience. The contrast between that period of our history as a city and the present is most striking. Then the population was 266,661; now it is estimated by the Health Department to be 805,855. Then the amount appropriated for the maintenance of the public health was $500; for the year 1889 it is $167,740. Then diphtheria appeared for the first time as a cause of death in Brooklyn, and the total deaths from that cause were but 13. In 1887, 950 persons died from dipththeria, and since its appearance as a mortality factor in Brooklyn in 1859 there have been more than 20,000 reported cases, of which more than 8,000 have proved fatal.

Many and great have been the changes during the 28 years which have elapsed since 1860, and to no one is more credit due than to Dr. Bell for what we have gained in the matter of sanitary reform. From that time to the present his voice and pen have been constantly enlisted in support of every cause which tended toward the improvement of the public health, local, State, and national; and for the sake of coming generations, we hope his life may long be spared to continue in the same philanthropic work.

THE AMERICAN PUBLIC HEALTH ASSOCIATION.

This association held its sixteenth annual meeting at Milwaukee, Wis., November 19–23. The meeting was attended by more than one hundred and fifty members from all parts of the United States and Canada. Brooklyn was represented by Dr. A. N. Bell, Health Commissioner John Griffin, Dr. Harry Kent Bell, and Dr. J. H. Raymond.

This association, as its name implies, is the national health organization of this country, and indeed includes among its active members representatives from all the provinces of Canada. The papers which have been read at its meetings form a series of thirteen volumes, and constitute the most valuable contribution to sanitary science which this country has ever made. We are glad to announce that the next meeting of this association will be held in Brooklyn, in October, 1889, and we bespeak for it the hearty co-operation of every resident of Brooklyn, both laymen and the members of the medical profession.

LECTURES ON BACTERIOLOGY.

The course of lectures on bacteriology by Dr. George M. Sternberg, at the Hoagland Laboratory, began November 17th, and has been continued each succeeding Saturday night. The lectures have been exceedingly interesting and instructive, and have from the first been well attended and appreciated by the medical profession and other scientific men. The tickets to the course have been furnished to all interested in the subject of the lectures without cost, and we are confident that we voice the sentiment of the entire profession when we extend to Dr. Hoagland our thanks for his liberality in providing such a treat for us.

PROGRESS IN MEDICINE.

OPHTHALMOLOGY.

BY RICHMOND LENNOX, M. D.,
Assist. Surgeon, Brooklyn Eye & Ear Hospital; Pathologist to N. Y. Eye & Ear Infirmary.

OPERATIVE TREATMENT OF VITREOUS OPACITIES

Bull (Am. Ophthal. Soc., July 18, 1888, N. Y. Med. Record, Sept. 1, 1888,) reports on seventeen cases in which he has operated for membranous opacities in the vitreous. These opacities were such as would not yield to medication, and of the seventeen operations, fourteen gave a decided improvement in vision. The remaining three operations were failures, but in no case was there any consequent loss of vision. The operation consists in passing a discission needle, a broad needle with double cutting edge, or a narrow cataract knife, according to the supposed firmness and tenacity of the membrane to be divided, into the vitreous, and dividing such membranes as a previous ophthalmoscopic examination may have shown to be there present. The preferable point of puncture is just in front of the equator of the eye, at the lower border of the external or internal rectus muscle, the cocainized eye being held in proper position by fixation forceps. There is seldom any marked subsequent reaction, and a simple protective dressing is all that is required. Care should, however, be taken that at the time of operation all inflammatory processes have subsided, and that the eye is quite free from irritation. Following the operation there is usually a retraction of the ends of the divided membrane, and in many cases quite an extensive absorption takes place. The improvement in vision was in some of the cases very marked, in one case being raised from $\frac{10}{200}$ to $\frac{20}{40}$. The operation was first suggested by Von Graefe, and the advantages claimed for it are: 1st. The improvement in vision; 2d. The diminished liability to retinal separation or inflammation, which might result from the traction of a membrane which is attached to one or other of the ocular tunics.

A REMARKABLE ANOMALY OF MOTION IN THE EYES AND EYELIDS.

Adamuek (Klin. Monatsblaetter fuer Augenheilk., May 1888,) gives the particulars of a peculiar case of what might really be considered temporary exophthalmus. In this case every movement of mastication was accompanied by a drawing upward and backward of the eyelids and a protrusion of the eyeballs, until at last the eyes of the patient became so prominent that it seemed as though scarcely the posterior third of the eyeballs could be still covered by the lids. On the cessation of mastication, the eyes and lids gradually resumed their ordinary position and appearance, which differed in no respect from the normal. Talking produced no effect on the position of the lids or eyeballs, nor did the displacement during mastication cause any pain. The patient presented herself simply for cosmetic considerations, because when she ate, her appearance was as disagreeable as it was remarkable.

Adamuek is of the opinion that the cause of the anomaly is to be found in some special relation of the orbital veins to the masseter muscle. He ascribes the protrusion of the eyeballs to a venous congestion of these veins, imperfectly relieved by the backward flow of blood through the cavernous sinuses, the communication with the facial veins being cut off by the contraction of the muscles of mastication. Just what the peculiarity is, it is of course impossible to say without a careful examination of the anatomical relations in the case. Of interest is the fact that although the anomalous tendency had existed for sometime, it had been on the increase. The patient would not consent to a proposed tarsoraphy, and was advised to eat alone or to wear dark glasses.

ARGYRIA OF THE CONJUNCTIVA.

Grossmann (Ophthal. Review, June 1888,) gives the result of a microscopical examination of excised pieces of the conjunctiva of a case of this kind, in which both the palpebral and ocular conjunctiva were stained almost black from the over-use of silver nitrate. Macroscopically the conjunctiva appeared thickened and discolored, and had lost its elasticity. Under the microscope the epithelium was seen to be normal, but beneath it was a stratum of darkly stained elastic fibres. No other tissue was affected, and in many places the fibres were broken down into a granular detritus. The excessive applications of silver had been made for a period of six months, nine years before.

FLUORESCIN AS AN AID TO DIAGNOSIS IN DISEASES OF THE CONJUNCTIVA.

Straub (Centralbl. f. pr. Augenheilk., March 1888,) has found fluorescin of service in diagnosing the absence of the corneal epithelium in cases in which the corneal tissue proper has retained its transparency. He uses a drop of saturated solution of fluorescin in ½ per cent. soda solution, which will stain those portions of cornea denuded of epithelium, green. The solution will not act through the epithelium owing to the resistance offered by the living cells, absorption through the intercellular cement substance being so slow that the greater part of the coloring agent is removed by the tears and lids before it has had time to penetrate, but will be easily absorbed by the exposed substantia propria of the cornea, passing directly into the numerous lymph channels with which this tissue is filled. In the living cornea the green color disappears within an hour, owing to the further diffusion of the stain by the lymph current. Of course in the majority of cases of corneal ulcer or abrasion inspection by ordinary or concentrated light will show the presence or absence of the epithelium, but in doubtful cases, as in one cited by the author in which the entire corneal epithelium was removed by hot alcohol vapor, the cornea, however, remaining clear,—the use of the fluorescin solution as recommended may well be of service.

RETINITIS PIGMENTOSA WITHOUT PIGMENT.

Occasionally one reads or hears of a case of amblyopia corresponding in all particulars with the typical retinitis pigmentosa, save that the most careful ophthalmoscopic examination fails to reveal the presence of the characteristic pigment masses in the retina. This has been known for many years, and although cases of this kind simulate in many respects amblyopia of cerebral origin, it is generally believed that the essential lesion of retinitis pigmentosa is an interstitial hypertrophy of the retinal elements, that the pigment deposits are simply the accompaniment and not the essential element in the pathologial process, and hence that the cases referred to are really retinitis pigmentosa though the pigment be left out. Very instructive in this regard is a case which occurred in Hirschberg's clinic(reported by Peltesohn, Centralbl. fuer pr. Augenheilk, July, 1888,) in which when first seen the patient gave the typical history of retinitis pigmentosa, the night-blindness, failing vision, contracted field, etc., but showed nothing of the characteristic retinal pigmentation. Three years later the patient presented himself again with the typical "bone corpuscle" pigmentation. His visual field was markedly reduced even in ordinary daylight. There was no history of consanguinity of the parents or grandparents, although two other members of the patient's family had commenced to suffer from night-blindness. The conclusion to be drawn from this case is that the retinitis pigmentosa without pigment is identical with the ordinary retinitis pigmentosa, being simply an earlier stage of the same.

MONOCULAR NYSTAGMUS.

Gordon Norrie (Centralbl. fuer pr. Augenheilk, Aug., Sept. 1888,) gives the histories of two of these rare cases, which in his opinion favor the theory of the central nature of this disease. As the cases are of considerable interest they are here given nearly in full.

Case I.—Child, 9 months old, brought on account of erythema palpebræ o. d. There was an active nystagmus of the left eye, without a trace of motion in the right. No strabismus. The nystagmic movements were horizontal, very rapid and moderately extended. Sometimes the nystagmus would cease for a few seconds, only to begin again. This was especially the case when the eye was turned to the temporal side. There was also an almost incessant rotation of the head from the median line toward the right and back again. This was much slower than the ocular movements, and was accompanied with a slight inclination of the head toward the right shoulder. Ophthalmoscope showed normal fundus, not very strongly pigmented. The nystagmus had been observed since birth, and the child was otherwise healthy. The ophthalmoscopic examination was made under atropine (gr. iiss–℥ j,) the effects of which lasted fourteen days. With their subsidence the nystagmic movements also diminished and finally ceased. Ten days later there was not trace of the nystagmus, although the movements of the head were unchanged. Three months later these had also disappeared.

Case 2.—Man, 43 years old, with marked disseminated sclerosis. Seen in general hospital. Chalky white discs. Vision reduced to counting fingers. The nystagmus had been noticed only a short time, but did not vary with repeated examinations. These showed that the left eye (that with the poorer vision) was in constant motion. When the eye was directed below the horizontal plane, the nystagmus was horizontal, but when above, the motion changed at once and became rotary,—becoming again horizontal when the patient looked down. Only when the eyes were turned strongly upward did the motion cease. The movements were very frequent and their range extended. Objects appeared unsteady and moving before this eye. There was neither paresis nor strabismus. The right eye was quiet, only showing some unsteadiness immediately before the accurate fixation of an object. Once after prolonged testing there was a slight rotation of this eye only noticeable during the ophthalmoscopical examination.

Norrie is not inclined to regard the movements of the head in the first case as compensatory, but rather as the result of the same cerebral process as the nystagmus. This is probable, as they were neither synchronous with the nystagmus nor in the same plane, and then too, as the child probably used the quiet eye for vision, there could scarcely have been need for "compensation." Of special interest is the variation in the nystagmus according to the direction of vision in the second case, and the permanent cessation of the nystagmus and cranial movements in the first, in which Norrie is not inclined to attribute any curative influence to the atropine used.

SURGERY.

BY GEORGE R. FOWLER, M.D.

Surgeon to St. Mary's Hospital and to the Methodist Episcopal Hospital.

RESECTION OF THE RECTUM, BARDENHEUER'S METHOD.

B declares (Volkmann's Klinische Vortrage, No. 298) that the immediate mortality following resection of the rectum is ten per cent., but that this can be reduced to five per cent. if accidents and complications, such as injury to the bladder, can be avoided. He proposes the following: An incision posteriorly in the raphe is made. Cross-section of the sacrum, preserving the region of the sphincter, follows. Passing directly to the posterior wall of the rectum, the cellular tissue surrounding the latter is separated with a blunt instrument or the finger; the peritoneum is separated in the same manner, care being taken to duly loosen also the reflection of the mesentery (otherwise sloughing of stretched rectal stump may follow the operation). The acro-rectal fat and glands are removed by a twisting motion, and, after uniting the rectal ends by a double row of furrier's suture, the wound is tamponed with iodoform gauze.

Kraske (Berliner Klinisch. Wochenschrift, 1887, No. 48), operates as follows: With the patient lying upon the right side, a median incision is made from the middle of the sacrum to the point of the coccyx; the soft parts are separated to the left, including the ischio-sacral ligament, as high as the third sacral depression, loosening the soft parts attached to the coccyx, and extirpating the latter entirely. Should this not give sufficient room, or if the growth is found to be attached to the hollow of the sacrum, then the under portion of the left half of the latter is chiseled away up to the level of the third posterior sacral foramen. Should the increased space thus gained be still insufficient, a cross section of the sacrum as high as the lower edge of the third depression is made. The opening into the sacral canal did not, seemingly, complicate the case thus operated upon. K. declares, in opposition to Bardenheuer, that lateral resection of the sacrum usually suffices. Cross section of the bowel below the growth, thus preserving the anal portion, is preferred, if the latter prove healthy. With the patient in the dorsal position, the diseased portion is drawn down by means of loops of thread, and loosened. If the growth is covered by peritoneum, K. opens the anterior peritoneal pouch or reflection, and passes his fingers into the same, seizing and bringing down the portion of rectum above the growth, seeks for its meso-rectum, and makes traction upon the sigmoid flexure. Hæmorrhage is more easily controlled when a wide operating field is thus obtained. The dangers of attempting to carry out Bardenheuer's method of twisting out the tissues and blood vessels are pointed out. Indeed, in one case, the inferior mesenteric artery was torn from the aorta, and death from hemorrhage resulted (Mittheilung aus dem Kölner Burger Hospital, Heft 4). The portions of the stump of the rectum corresponding to the opening into the peritoneum, as well as the latter itself, are closed by sutures, the posterior aspect of the bowel remaining open for free passage of fecal matter. A preternatural anus in the sacral region follows, which must be subsequently closed. K. proposes to try the effect of a previously performed lumbar colotomy, and then to make complete circular suturing of the divided ends of the rectum.

Schede (Deutsche Med. Wochenschrift, 1887, p. 48,) improved the operation of Kraske by not splitting the lower portion of the rectum, and uniting the ends of the bowel immediately after the operation. S. has executed his procedure on three patients. The first patient operated upon gave evidences of early development of the cancerous cachexia. Extirpation of the coccyx and removal of a portion of the sacrum was followed by clearing of the rectum, which up to this of point had not been opened. While this was comparatively easy below, the upper portion, owing to carcinomatous adhesion, could not be released without removing the bone in the region of the third sacral depression. This involved necessarily a removal of the corresponding nerve. The point of reflection of the peritoneum was now incised, and after lifting it and securing it to the flexure at a higher level, about 14 ctm. of the rectum was removed. In the absence of any peritoneal investment, the edges of the rectum were simply reunited, without folding in. The wound was tamponed with iodoform gauze, and movements of the bowels restrained by opium. The wound healed until a fistulous opening on the posterior aspect of the sutured portion of the gut only remained. Both secondary suture and plastic covering failed to close this; by continuous freshening of the wound edges, it healed, however, until an opening the size of a pin's head remained. The interesting fact is noted that the removal of the third sacral nerve led only to transient appearances of paralysis of the muscular coat of the bladder, and that the function of the sphincters was entirely uninjured by the operation.

In a second case, in order to avoid the retardation of the healing process in consequence of the passage of fecal matter, S. made an artificial anus in the descending colon. The healing process was completed in four months following the operation. In a third case, in which there existed a still more extensive carcinoma, S. was compelled to make a cross section of the sacrum. As a consequence of this, there appeared a paralysis of the accelerator vesicae, which latter, however, disappeared after about fourteen days.

SEPTIC DISEASES AND SUPPURATION.

Mr. W. Watson Cheyne (British Med. Journal, March 10, 1888). While there can be no doubt that pyogenic organisms are the essential factors in the production of septic diseases and suppuration, yet other conditions enter into the etiology, among which may be instanced the seat of the inoculation, the number or quantity of the organisms, and local and general depression of vitality, where such exists. Small numbers of the organisms, in depressed conditions of the system or tissues, and the prolonged contact with the same, may be sufficient to set up the train of symptoms; while, on the other hand, in vigorous individuals, large numbers may be tolerated without harm resulting. Any cause which acts unfavorably upon the body generally, but particularly those which have a local action and induce the early stage of inflammation, such as cold, injury, chemical substances, ptomaines, and other products of the bacteria themselves, and unfavorable conditions arising from the anatomical peculiarities of the parts at the seat of inoculation are to be feared.

Pathogenic organisms are found with comparative rarity, according to C., in the atmospheric air. In erysipelas, it is highly probable that they occur in the greatest numbers when desquamation is taking place; hence patients suffering from this disease should be particularly watched when the cutaneous scales are being thrown off. Cocci have for their most common seat, outside of the body, the surface of the skin; and their most common habitat is to be found in parts where the skin is moist, for example, between the toes, in the folds of the groins, nates, and axilla; in the dandruff shed from the scalp and beard they are likewise found, and in the sub-ungual collections. Particular care should therefore be taken to thoroughly disinfect these regions before proceeding with the operation; and, inasmuch as dead epithelial scales are particularly prone to harbor the bacteria, and these scales are especially abundant under antiseptic dressings, the greatest care should be exercised in changing the dressings, that the wound should be protected while the surroundings are being disinfected. If dressings are left in situ too long, the cocci may develop in the favorable pabulum furnished by the epithelium and discharges, and, by spreading, finally reach the wound itself in spite of the antiseptics employed; the superficial layers of the mingled dead cutaneous scales and wound secretions protecting the bacteria. As the initiation of these changes occurs necessarily at the margins of the dressings, it follows that the readiness with which they will reach the wound will be in direct proportion to the size of the dressings and the length of time they are left unchanged.

UPON TEMPORARY ARTIFICIAL CLOSURE OF THE URETERS.

P. Müller, (Deutsche Med. Wochenschrift, 1887, No. 31,) commenting upon the unreliability of methods now in use for obtaining the secretion of each kidney separately, indicates several procedures for producing artificial closure of the ureters. Basing his view upon the anatomical conditions of the pelvis, he recommends compression of the ureters in the lesser or greater pelvis, either from the rectum or through the abdominal walls. In order to make digital compression from the rectum, the spine of the ischium is selected for a landmark, the finger feeling its way upwards in the direction of the linea innominata, pressure being made against the soft parts constituting the lateral abdominal wall. This point about corresponds to the median wall of the acetabulum. In this region the ureter lies near to the bony pelvic wall. In females the ureter can be compressed at the same point from the vagina. In order to replace the digital by instrumental compression, M. employs an angular lever with arms of unequal length. A splint is placed upon the thigh, and to this, through the medium of a joint, the lever is fixed as a point of support. The short arm of the lever carries an adjusting screw for the purpose of fixing the lever in the desired situation. To the long arm of the lever is fastened a rubber balloon filled with quicksilver and covered with linen to insure against bursting. An elastic rectal tube connected posteriorly to the balloon, a short piece of rubber tubing, a glass tube, forty ctm. long, and a glass funnel complete the apparatus. Upon a cadaver, placed in the lateral position, this instrument seemed to demonstrate the entire feasibility of compressing the ureters at will; 1,800 gm. (four pounds) of quicksilver was used for this purpose. The ureter is compressed by the balloon to an extent of two ctm., at least. The method was also used, upon one occasion, upon the living subject. In order to compress the ureter against the abdominal wall, M. recommends the application of a pad such as is used for compression of the aorta. This is to be done under an anæsthetic and with the patient in the lateral position. He has no experience with the latter method, however.

A NEW METHOD OF TREATING INDOLENT ULCERS.

F. Spaeth (Centralblatt f. Chirurgie, No. 14, 1888). Attention is called to the fact that the principal reason why indolent ulceration shows so little tendency to heal, as well as the readiness with which the resultant cicatrix, in cases in which the reparative process is apparently complete, breaks down into new ulceration, lies in the incomplete nourishment of the tissues through insufficient blood supply. The calloused edges of the ulcers consist of condensed connective fibres, with but few vessels. The base of the ulcer, likewise, consists of altered connective tissue structure, of a tendinous or sinewy character, which naturally offers resistance to cell proliferation and regeneration. These thickened conditions of the connective tissue have either arisen secondarily in consequence of chronic irritation, especially in the case of varicose leg ulcers, or the base of the ulcer represents, after necrotic changes in the skin have occurred, stretched fasciæ, which, through poverty of blood supply, do not allow of sufficient granulation formation, and refuse to respond to the usual means of stimulation. The method advanced by S., and which he claims originated with Dr. Harbordt, chief of the Frankfort clinic, is as follows: The entire ulcer is split lengthwise far into the healthy underlying tissue, and in addition, numerous cross cuts are made, which should also penetrate into the healthy tissues, at distances of about two ctm. An important point insisted upon, is the necessity of carrying the incision sufficiently deep to penetrate the underlying fascia. They should gape widely. After arresting the hemorrhage, the parts are dressed with iodoform gauze. In from eight to fourteen days the limb is redressed, when it is found that the gaping incisions are filled with healthy granulations. These quickly reach the level of the surrounding skin, and are soon the seat of an energetic growth of epithelium.

It is claimed for this method that the introduction of granulation growth from beneath the hardened connective tissue, through the gaping incisions, furnishes a means of supplying nourishment to the parts, which are thus placed under favorable conditions for repair. In addition, the cicatrix, being furnished with an increased supply of vessels from beneath, will break down less readily. It is apparent, and experience bears out the assumption, that a cicatrix, formed under such circumstances offers a greater resistance to disturbances arising from mechanical influences than when a comparatively barren base, furnishing but little nourishment, forms the groundwork of a cicatrix brought about by other means.

(More than seventeen years ago, the abstractor saw cases of inveterate ulcer, of from ten to fifteen years' standing, successfully treated in almost precisely the same manner at Charity Hospital by Prof. Lewis A. Sayre, of New York, with the exception of the dressing of iodoform gauze. Instead of this latter, "basket strapping" and tight bandaging were used. The strapping was done with the old-fashioned diachylon plaster, extending from the toes well up the leg, and it was a noticeable fact that, although the dressings were not renewed until the outer bandages were soiled with secretions, this extending over a period of from seven to fourteen days, and sometimes longer, yet no offensive odor emanated from them. I have been led to ascribe this, in the light of more recent experiences in antiseptic wound treatment, to the exclusion of the atmospheric air; and further, to the fact that the plaster used contained lead compounds which, coming in contact with the wound secretions, formed combinations with the latter possessing antiseptic properties. Prof. Sayre writes that he has used the method for over thirty years, and that, as far as he is aware, it is original with himself.

An advantage not to be lost sight of in the method of Dr. Sayre, is that it allows the patient to walk about, or at once return to work, a matter of no small importance to the class among whom chronic, inveterate and indolent varicose leg ulcers occur.)

OBSERVATION UPON INGUINAL CASTRATION, WITH NOTES UPON THE ANATOMY OF ECTOPIC TESTICLE.

Monard (Bull. et Mèm. de la Soc. Chirurg. de Paris, F. xiii., p. 510). Godard, in his researches upon undescended testicle, had always found normal structure, and declared his belief that the generally accepted opinion of loss of function was due to abnormal attachments.

M., however, found very important anatomical changes, thereby agreeing with the earlier researches of Toilin. These changes were found to vary according to the age of the patient. In the case of a young adult, from whose inguinal canal a testicle was removed, the latter organ, although somewhat approaching the normal, spermatozoa could be demonstrated to exist in different stages of development. Inguinal testicles, in older persons, showed, on the contrary, an atrophy of the organ, particularly of its epithelial elements, caused by sclerosis of the connective tissue around the seminal ducts. The sclerosis begins at the albuginea and corpus Highmori, and a slight degree of atrophy suffices to prevent the free passage of the products of secretion to the seminal vesicles. This supports and explains the observations of Godard, who stated that in autopsies upon cases of inguinal testicle the seminal vesicles are found markedly atrophied as compared with the other side.

THE IODOFORM TAMPON IN WOUND-TREATMENT.

F. Bramann, Berlin (Archiv. f. Klinisch. Chirurgie, Bd. xxxvi., pp. 72–96). Arrest of hæmorrhage is executed with the greatest care, this being considered as one of the essentials to successful primary union. When the wound is perfectly dry, the sutures and drainage tubes, if the latter are considered essential, are placed; and if any reasonable doubt exist as to its ascepticity, it is brushed over in all its recesses with a solution of iodoform in ether (1–10), and tamponed with pieces of iodoform gauze in such a manner as to allow the ends of the latter to protrude from one angle of the wound. Sublimate, or simply sterilized gauze, is placed over this, and this is removed if the discharges penetrate it. Usually, after two days, the tampon may be removed and the sutures drawn together, and primary union results. This latter has also been obtained after the lapse of six days, when, from collapse or the unavoidable failure to secure large vessels, an earlier interference was not considered advisable. Some wounds may be thus exclusively treated.

Especial advantages are claimed for this method in tubercular cases, in which it is now believed that the presence of blood in the wound favors the further extension of the disease. Fresh compound fractures are also said to do well under this treatment.

(It is evident that one of the disadvantages of this method resides in the necessity, in some instances, of a second etherization for the purpose of properly closing the wound. Probably most surgeons would limit its application, therefore, to amputations, through tissues strongly suspected of being already infected, and cases of resection of tuberculous joints.)

UPON LIGATURE OF THE ARTERIES OF THE THYROID IN GOITRE.

Th. Billroth (Wiener Klinisch. Wochenschrift, 1888, No. 1). The occurrence of tetanus and "cachexia strumipriva" following extirpation of the thyroid, together with the danger of injury of the recurrent nerve, even with the most careful precaution, render it desirable to replace this operation by some procedure less serious, both in its immediate dangers and remote results. B. thinks favorably of ligature of all four of the arteries supplying the thyroid body, thereby producing a gradual shrinking of the latter. Gangrene, or necrobiologically degenerated portions of the structure of the goitre, it is believed, will not be found to follow this operation. In regard to the influence of the ligature upon the cystic form of the disease, experience is wanting. As a result of the operation upon rapidly growing thyroid growths in the young, obliteration of the vessels and atrophy of the inter-glandular tissues may be expected. The total atrophy of the goitre, it is believed, occurring only in a slow and gradual manner, will protect the patient against the supervention of the cachexia. Permanency of the cure, it is maintained, will be assured by this means.

As to the technique of the operation, the author prefers the incision upon the external edge of the sterno-mastoid, and calls special attention to the fragility of the inferior thyroid artery, the ligature of which requires particular care.

B. performed the operation in four cases. In one case only two of the vessels were tied. The tumor disappeared, but three months afterward a recurrence took place, which was treated by enucleation. In the other three cases all four arteries were tied, with favorable results in two cases ; in the third case it is noted that fifteen days after the operation a considerable diminution in the size of the tumor had taken place, with the patient still in attendance.

Upon cosmetic considerations, the ligature is to be preferred to extirpation, for the reason that the atrophy will not be so complete as to leave a noticeable depression upon the sides of the trachea.

B. finally recommends trial of the ligature in cases of sarcomatous and carcinomatous goitre. He operated upon a case of medullary sarcoma of the thyroid in this manner, but the result was not favorable.

THE MODERN OPERATIVE TREAMENT OF TUBERCULAR JOINT AFFECTIONS.

Dr. A. G. Gerster (Annals of Surgery, April, 1888, p. 242,) calls especial attention to the value of a methodical and properly graduated process of refrigeration of the hot and tender joint affected with tuberculosis, by means of the ice-bag, and the early ferreting out and surgical evacuation of tuberculous cheesy foci located in the epiphyses. The rationale of the first mentioned rests upon the fact that a lowering of the temperature of the medium within which tubercle bacilli thrive, while it does not kill the spores of the fungus, arrests further propagation, and, by bringing about an arrest of its growth, affords time for strengthening the general powers of resistance of the organism by proper diet and medication. This gives the healthy tissue, likewise, a chance to throw around the focus of disease an encapsulating wall of granulation, or ultimately dense connective tissue. This is particularly applicable to the disease as it is found in children, particularly in institutions, where, combined with proper orthopædic treatment, it will frequently be found to give good results, under the hand and eye of a vigilant practitioner.

In adults an orthopædic plan of treatment is generally impracticable, and, particularly among the poor, early operative treatment is advisable, especially in cases where the lower extremity is involved. Total or typical exsection should have the preference, as a rapid and lasting cure is most desirable. All tissues, both soft and osseous, that are found to be manifestly diseased, or even morbidly altered, must be removed as thoroughly as though we were dealing with cancer.

In children, where, either from the virulence of the disease, disregard of instructions or other negligence of the parents, combined orthopædic and refrigerant measures prove to be of no avail, operative treatment is likewise demanded. Here, however, partial excisions or "erasions" of the joint will often suffice. Joint capsules, however, should always be removed, and strict asepticism maintained.

CASE OF ALARMING HÆMORRHAGE FOLLOWING EXCISION OF THE TONSILS.

Dr. S. E. Fuller (American Journal of the Medical Sciences, April, 1888, p. 357) relates the case of a young man upon whom he performed the operation of excision of both tonsils for hypertrophy, and in whom a sudden and uncontrollable hæmorrhage took place from the stump of the right tonsil several hours afterwards. Various astringent remedies, including hot and cold water, were made use of, and finally the right common carotid artery was ligatured. The bleeding, however, persisted for three hours longer, and then ceased after a douche of very hot water; the patient fainted while this latter was being done. The patient having become pulseless at the wrist, twelve ounces of saline solution were thrown into the circulation through the radial vein. The patient finally made a good recovery. It is noted that the tissues of the right tonsil, at the time of the operation, appeared to the operator to be peculiarly hard, and its section was accompanied by a grating sound which was noticed by the patient himself. Although it does not appear clearly that the patient was a subject of hæmorrhagic diathesis, yet he had bled to the point of syncope after the extraction of a tooth about a year before, and a cousin on his mother's side was a hæmophilic. To the fact that the tonsil seemed hard upon removal, and hence the cut vessels were prevented from retracting, is attributed the excessive bleeding.

No mention is made of the removed tonsil having been examined for evidence of fibrous degeneration.

The source of the hæmorrhage was undoubtedly from the deep cervical branches of the facial, together with the dorsalis linguae, the ascending pharyngeal from the external carotid, and the descending palatine from the internal maxillary. Owing to the free anastomoses between these vessels from either side, the author criticises the usual recommendation to throw a ligature around the common carotid in this class of cases, preferring, in any future similar case, to trust to pressure, hæmostatics, and placing the patient in an upright position to encourage fainting.

CORRESPONDENCE.

167 CLINTON STREET,
BROOKLYN, N. Y.

To the Editors of the Brooklyn Medical Journal:

Dr. Arnold Stub's letter, in your issue of November, regarding an interesting case of mammary tumor, attracted my attention, and I desire to say a few words in reply to his inquiry.

Knowing how well Dr. Stub is versed in pathology, I consider myself wholly unable to give him any information on that point. In regard to clinical observation in such cases, I can speak from a not very limited experience. I had the pleasure of seeing the patient whose history the Doctor related at the meeting of the Pathological Society, and observed all the facts just as they were reported by him

I can also call to mind three other cases, seen in my own practice, having a history similar to that of Dr. Stub's case. In all of them the tumor disappeared. In one case I had strongly urged operation, believing that the tumor was malignant. At least the symptoms and physical signs were such as we find in malignant mammary tumors. It is now a year since the tumor disappeared entirely, and the patient still remains quite well. Last winter I removed a mammary tumor from the sister of this lady. This proved to be malignant on microscopical examination.

Judging from my own observations, I should say that such tumors are not very rare.

Very truly,

ALEX. J. C. SKENE.

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39 WEST 45TH STREET,
New York, Nov. 22d, 1888.

DR. ARNOLD STUB:

Dear Doctor: The tumor you describe in No. 5, Vol. II., of THE BROOKLYN MEDICAL JOURNAL, is by no means a rarity. From what you say of the history, there is scarcely any doubt left as to the inflammatory nature of the swelling, which in the centre had entered suppuration, and remained surrounded by the inflammatory new-formation for a long period of time. Thus it became possible for the pus to be transformed into serum and remain encysted without being a cyst proper.

There is another possibility, however. A cysto-adenoma may have been present previous to confinement, having escaped the attention of the lady. After confinement inflammation may have set in, with the result as described by you. Such single cysts, surrounded by newly formed glandular tissue—adenoma—I have examined myself. Cystoma we would term the tumor only, if a number of cysts had been present.

That the tumor was the result of dilatation of a lacteal duct is highly improbable. No authenticated case of "galactocele," as a primary form of tumor, is on record.

Cancer of the breast is, sometimes, combined with cysts, yielding the variety named "Colloid Cancer." This form is out of question in your case.

I recommend for study the article of Th. Billroth, "Die Krankheiten der Brustdrüsen" in "Handbuch d. Frauenkrankheiten," edited by Billroth and Lücke, III. Vol., 1886.

Yours truly,
Dr. C. HEITZMANN.

BROOKLYN, N. Y., Nov. 26, 1888.

To the Editors of the Brooklyn Medical Journal:

I did not say what is attributed to me on page 407 of the JOURNAL, nor anything like it. I never had a thought which could have prompted such a remark.

EDWARD SEAMAN BUNKER.

MISCELLANEOUS.

THE HISTORY OF YELLOW FEVER.

Mr. Kirk Monroe has given, in the *New York Times*, a very condensed summary of the history of yellow fever epidemics. Although the home of yellow fever is in the West Indies, it has become nuturalized in the United States, where it has existed in a more or less active form for nearly two centuries. It has never appeared in Asia, Australia, the islands of the Pacific, nor, so far as is known, in Africa, and it has only been felt sporadically on the Pacific coast of North and South America. In Europe it has invaded Spain, Portugal, Italy, France, and England. In South America it has prevailed in British Guiana, Columbia, Peru, Bolivia, Brazil, and the Argentine Republic. In North America it has ravaged Honduras, Mexico, and the West Indies, and has even appeared so far north as Quebec. Of the United States the following have suffered from its visitations: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, Kentucky, Tennessee, Missouri, Arkansas, Ohio, Indiana, Illinois, and also the Indian Territory. The first authentic record of its appearance is in Central America in 1596, and its most terrible visitation was that to the island of St. Lucial in 1666, when it swept away every soul of a population of 5,000. It first appeared in New York in 1668, in Boston 1691, and again in 1693. Philadelphia was first visited in 1695, and again in 1699, when the city was but seventeen years old, it swept away 220 of its scanty population. In this year also it first appeared in Charleston S. C. In 1702 it raged with great fury in New York until the 30th of September, the mortality reaching 570, and in that year it first visited the Gulf coast, appearing at Biloxi, Miss. In 1705 it visited Mobile, and also made its first appearance in Europe, at Cadiz, Spain. Between this date and 1800 it appeared in Charleston, S. C., 17 times, in New York 16 times, in Philadelphia 12 times, in Baltimore 5 times, in Boston 3 times, and in New Orleans 4 times. Prior to the year 1800 it also visited such remote places as the island of Nantucket, where, in 1763, 259 persons died from it; Catskill, N. Y.; Hartford, Conn., Portsmouth, N. H., Albany and Greenfield, N. Y., Salem, Mass., and

Woodbury, N. J. In this country the most terrible visitation in the last century was in 1798, when the mortality from yellow fever in Philadelphia was 3,500, in New York, 2,080, Baltimore 200, in Wilmington, Del., 225, in Portsmouth, N. H. 100, in New London, Conn. 81, and in Chester, Penn., 50. In this year also, on the island of San Domingo, out of 25,000 troops the incredble number of 21,190 fell before the dread destroyer. In 1799 the death list in Philadelphia from yellow fever reached 1,000, and in New York 76. During the year 1800 the most terrible ravages of the fever were confined to Spain, where, in Cadiz, the cases numbered 48,520, and deaths 7,387; in Xeres, with a population of 33,000 the cases numbered 30,000 and the deaths 13,000; in Seville, with a population of 80,568, the recorded cases reached the enormous number of 76,488 and the deaths 14,685. Many other smaller Spanish cities suffered in like proportion, and in Havana the mortality was 9,977. In this year also New Bedford, Providence, Hartford, Boston, New York, Philadelphia, and other Northern cities suffered more or less, and in Norfolk, Va., the fever claimed 250 victims out of nearly a thousand cases. In 1801 Spain and the West Indies again suffered, and the fever spread into Italy, where, at Leghorn, 150 died daily for several months. It also visited several places in the United States, among them Block Island and Queensborough, in Orange County, N. Y., where 140 persons died during the month of October. In 1802 the mortality from yellow fever in the West Indies was something frightful. In San Domingo there were 27,000 cases and 20,000 deaths, and other islands suffered in like proportion. In 1803 the fever began in New York on July 18, and ended in October, with a death list of 6,700 souls. In 1804 Cartagena, Spain, lost from yellow fever, 14,940 of her population of 32,220, and Malaga from a population of 36,000 lost 11,464. The official reports of deaths from yellow fever in Spain for this year place the mortality at 124,000, and the population of the country is said to have been reduced by more than a million. In 1805 Quebec was visited by the fever for the first and last time. The attack was of short duration, being nipped by frost early in September, but it was so severe that out of one company of English troops, 55 in number, all perished except 6. In this year also the fever again raged in Philadelphia, destroying 3,400 persons. From this date until 1819 there was no epidemic of yellow fever in the United States, though every year witnessed a number of sporadic cases. In 1819 it broke out in Alabama and Louisiana, and in New Orleans the mortality was 2,190. Spain suffered terribly during this year and in the two following. In 1822 New York witnessed its last epidemic of the fever, where out of 414 cases 220 died. Since this date there have been no epidemics of the fever on the Atlantic coast north of Norfolk, Va., though a number of imported cases scattered about the shores of New York Harbor threatened to cause one in 1856. The terrible epidemic of 1853 that swept over portions of Florida, Alabama, Mississippi, Louisiana, Texas and Arkansas, numbered its victims by thousands. In New Orleans alone during the month of August the mortality was 6,235, while before the epidemic ended the death list had swelled to a total of 8,400 In 1854 the dread fever claimed 2,423 more victims in New Orleans, and in 1855 2,670. In the latter year the pestilence raged in Norfolk, Va., where it claimed 1,807 victims, and in Portsmouth, Va., where the mortality was 1000. In 1857 Jacksonville, Fla., was visited for the first time. In 1858 the mortality in New Orleans was 3,889. A phenomenal year was 1861, when not a single case was reported from any quarter of the United States. This was probably owing to the all-absorbing interest of the war. After 1853 the next great epidemic year was 1867, when the principal sufferers were Louisiana and Texas. During this season the mortality in New Orleans reached 3,093; in Galveston, Tex., 1,150, and Memphis Tenn., 231. In 1870 there were 49 deaths from yellow fever on Governor's Island, New York Harbor, and 18 in Philadelphia, but in neither case did the fever spread beyond its original limits. Florida and Charleston, S. C., suffered in 1871, and in 1873 another great epidemic of yellow fever swept along the Gulf Coast and up the Mississippi Valley, touching parts of Florida, Georgia, Alabama, Mississippi, Louisiana, Texas, Arkansas, Tennessee, Kentucky, Illinois, and Ohio. The greatest mortality was at Memphis, where it reached 2,000. In 1876 the yellow fever became epidemic in Savannah, Ga., and in 1878 occurred the most terrible epidemic of the disease yet known in this country. It swept along the Gulf coast and up the valley of the Mississippi to Cairo, Ill., seizing its victims in every city, town, and almost every village and plantation in its course. So malignant was it that it readily attacked domestic animals, and even the wild deer of the forest are said to have died from it. In Memphis, with a population reduced to less than 20,000, there were 17,600 cases and 5,150 deaths, a ratio of mortality to cases of 1 in 3.3. Since that awful time to the present, a period of ten years, there have been no great epidemics of the pestilence in this country.

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THE BEST ANÆSTHETIC.

There is undoubtedly at present a tendency, due perhaps to German influence, to return to chloroform as an anæsthetic. Mr. George Foy, in defending chloroform anæsthesia in *The Lancet,* quotes the following statistics: "At the Edinburgh Infirmary, during a period of twenty-eight years from the introduction of chloroform into surgical practice, only two deaths had been attributed to chloroform, which, according to Kerr, is one death in 36,500 administrations. Esler, of Strasburg, had used chloroform 16,000 times, and had never seen a fatal case; Kidd, of London, 10,000 times, without a death; Dr. Bardeleben, of Berlin, 30,000 times, before meeting with a death; French surgeons in the Crimea, 30,000 cases, and not one fatal issue; English surgeons in the Crimea, 12,000 times, with one single death reported as attributed to it; McGuire, of Jackson's corps, 28,000 times, and no death; Richardson had seen it used in the London hospitals 15,000 times before he met with the first fatal case; Billroth, of Vienna, 12,500 times before he met with his first accident." In the Federal army it was administered in 80,000 cases. In thirty-seven cases fatal results have been ascribed to its use. To this *The Lancet* replies: "Those who are familiar with American methods of ether-giving will naturally repudiate any conclusions based upon the experience of American surgeons, since the routine drenching with ether in vogue in the United States has no counterpart among skilled anæsthetists here. Sequelæ such as those described by Dr. McGuire are practically unknown in England. Dr. Chisholm may not have lost any patients from chloroform, but he has published accounts of several cases in which he confesses he thought death was imminent. The statistics quoted by Mr. Foy, and borrowed from Drs. McGuire and Chisholm, are really out of date, and unhappily give too low a percentage of deaths. Even accepting them, they show a far higher death-rate than can be obtained from ether." That routine drenching with ether is the practice among American surgeons, we must emphatically deny. For the rest we leave the argument to our readers.—*N. Y. Medical Record.*

MEDICAL CONSULTATION BY TELEGRAPH.

We copy the following from one of the daily papers. It is the substance of a despatch from Victoria, B. C.:

"The telegraph was brought into service yesterday in a way that not only afforded a good illustration of the extent of the system, but furnished a unique example of the possibilities of modern science. Lord Ennismore, heir to the Earldom of Listowell, is lying at the point of death in the hospital here with typhoid fever, accompanied by other complications. Through the aid of Sir Donald A. Smith, who is in London, a telegraph circuit was formed from London to Victoria by cable and telegraph, and Sir Andrew Clarke, the distinguished London physician, was placed in direct consultation with Dr. Hannington in Victoria.

"A conversation lasting three hours, concerning Lord Ennismore's condition, was carried on. An unbroken circuit was worked from Victoria to the cable office in New York, whence the telegrams were repeated to London. The distance between the cities is over 6,000 miles. Replies were received in three and four minutes. Lord Ennismore, though still in a dangerous condition, was somewhat better last evening."

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BROOKLYN VITAL STATISTICS FOR OCTOBER, 1888.

By J. S. YOUNG, M.D. Dep.Commissioner of Health.

Data of comparison:

Population, estimated on Oct. 1st, 1888 805,855

In the month of October, 1888, there were 1,289 deaths, the rate of mortality being 18.84 in every 1,000 of the population.

The number of births reported was 1,157
The number of marriages reported was 635
The number of still-births reported was 129

The mortality by classes and by certain of the more important diseases was as follows:

Causes:

1. Zymotic	285
2. Constitutional	292
3. Local	572
4. Developmental	102
5. Violence	38
Measles	1
Croup	40
Diphtheria	52
Scarlet Fever	22

Typhoid Fever	36
Yellow Fever	1
Whooping Cough	23
Malarial Diseases	—
Diarrhœal Diseases (all ages)	59
“ “ (under 5 years)	47
Phthisis	167
Bronchitis	64
Pneumonia	101
All Respiratory Diseases	195
Bright's Diseases	31
Puerperal Diseases	9
Old Age	32
Suicide	6

Reported cases:

Diphtheria	145
Scarlet Fever	120
Measles	36
Typhoid Fever	106

During the month 2 cases of small-pox were reported, of which number 2 were confirmed as small-pox. 2 cases of small-pox were sent to the hospital. No deaths from small-pox occurred in the city and none in the hospital.

Deaths by sex, color, and social condition were as follows:

Male	642	Female	647
White	1269	Colored	20
Native	863	Foreign	426
Married	340	Single	760
Widows, Widowers, and not stated			189

Still-births (excluded from list of deaths) were as follows:

Males	65	Females	64
Total			129

Deaths in public institutions	94
Deaths in tenement houses	595
Inquest cases	111
Homicides	—
Suicides	6

Age Periods:

Deaths under 1 year	290
" " 5 years	194
Total deaths under 5 years	488
" " 5 to 20	119
" " 20 to 40	273
" " 40 to 60	201
" " 60 and upwards	208

Certain foreign and American cities show the following death-rate for the month of October:

Brooklyn	18.84	Vienna	19.65
New York	22.20	Paris	20.55
Philadelphia	18.03	London	17.02
Berlin	22.24	Glasgow	20.02
Dublin	22.28		